The School Arts Magazine

AN · ILLUSTRATED · PUBLICATION · FOR · THOSE INTERESTED · IN · FINE · AND · INDUSTRIAL · ART

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DIRECTOR · MUSEUM · OF · FINE · ARTS · STANFORD UNIVERSITY · CALIFORNIA

VOL. XXII JANUARY, 1923 No. 5

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Published by THE DAVIS PRESS INC.

25 FOSTER STREET · · · WORCESTER, MASSACHUSETTS

Entered as Second-Class Matter, August 1, 1917, at the Post Office at Worcester, Mass., under the Act of March 3, 1879. All rights reserved. Monthly except July and August. Subscription Rates $3.00 a year in advance; Canada $3.25; Foreign $3.50.

Copies on sale in:

New York, Brentano's, 27th St. and 5th Ave.
Boston, Smith & McCance, 2 Park St.
Chicago, A. C. McClurg's, 215 Wabash Ave.
Cleveland, Burrowes Bros. Co., Guardian Building
Philadelphia, Milton Bradley Co., 1209 Arch St.
St. Louis, Arcade Book Shop, 8th and Olive Sts.
London, Arthur F. Bird Co.,32 Bedford St., Strand.
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Without Architectural design our city would be reduced to log cabins. Without Sculptural design we would have no monuments, no ornaments in relief, no coined money. Without Pictorial art no mural decorations, no pictures, no illustrations, no illuminated advertisements, no paper money nor postage stamps would be possible. Without Decorative design we would have to dispense with rugs, carpets, wall papers, draperies and figured dress goods of every kind. ▫▫ Without Structural design our furniture would be rustic only, our utensils, coarse baskets, clay bowls, flints and chop sticks; our fixtures a camp fire for cooking and a pine knot for light; our jewelry bright colored seeds, shells and knuckle bones; without Costume design we would all be Adams and Eves. In short, without these arts we would be reduced to the crudities of the primitive man.

Henry Turner Bailey

The · School · Arts · Magazine

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The Lore and Lure of the Metal Crafts

AUGUSTUS F. ROSE — ANTONIO CIRINO

WHAT craft is there with a richer and more fascinating lore than that of the metal craft. From the earliest times men have recognized the value and usefulness of metals found in the earth and have utilized them not only for personal ornaments but for utensils of various kinds. The desire to ornament the person with jewelry is a primitive instinct older than the desire for dress as we find that primitive man wore ornaments before clothes.

We read in the Bible that Tubal-cain was the first known cunning craftsman or artificer in brass and other metals. In the Book of Genesis it says that Abraham, when he went out of Egypt in the 20th century B. C., was very rich, not only in cattle, but in gold and silver, and it also states that he gave to his servant Rebekah a golden earring of half a shekel weight, also two bracelets for her hand of ten shekels of gold. To read the 37th Chapter of Exodus one can easily picture Bezaleel and his craftsmen making the vessels, bowls, spoons and candlesticks for the Tabernacle all of pure gold; also the vessels of the altar of brass, the pots, shovels, basins, fire pans, tongs, grates, lavers, snuffers, and looking glasses for the women.

Besides being an article of adornment in ancient days, gold and silver were used as a convenient asset during periods of conquests. In Numbers we are told that Moses after suppressing the Midianites, captured their spoils and made an offering unto the Lord of jewels of gold amounting to 16,750 shekels, the equivalent of $83,750 in our money.

Gold is probably the first metal known to man and its first use has been traced back to Egypt about 3600 B. C. The early paintings and rock carvings of the Egyptians illustrate its use and the ancient methods of obtaining it from the earth which are of much interest to the metal crafts worker. The Egyptian goldsmiths having an abundance of gold at their disposal made all kinds of vessels and jewelry set with precious stones. Great quantities of gold objects and ornaments have been found in the tombs showing by the craftsmanship that the knowledge of almost every technique employed by goldsmiths of today was known to these ancient workers.

The Greek craftsmen have produced metal work of a very high order, in many cases so perfect in workmanship that it is difficult to imitate or explain the process. It was not only on their temples and the images of their Gods that the Greeks put their best efforts in art, but in their vases, jewelry and humble utensils of the household and everyday life, we find the Greek craftsman

pouring out some of his richest fancies and the same spell of beauty is cast over them all.

These ancient workers in precious metals were acquainted with many devices that have been supposed to be of modern invention. The extreme fineness of the spun gold and the filigree and granulated work is such that we are unable to determine the methods by which the work was done. The Greek goldsmiths excelled in the arts of chasing, intaglio, repoussé, engraving and soldering.

Jewelry seems to have been prized by the Assyrian king and courtiers almost as much as by the women of today and the demands for novelties must have taxed the jewelers' inventive faculties to the utmost. Amulets, bracelets, necklaces, earrings and trinkets of all kinds were in demand. The Romans also were no exception in the use of jewelry and their degree of luxury has not been surpassed in modern times. Pliny writes "they seek for pearls at the bottom of the Red Sea and search the bowels of the earth for emeralds to decorate their ears."

The splendor and magnificence of the decoration in the Byzantine churches is the result of an abundant use of gold and silver, precious stones and enamel. The altar itself was a gorgeous piece of workmanship decorated with hanging lamps, vases and candlesticks, all wrought in precious metals, though the actual design and workmanship was rough and less refined than the antique work.

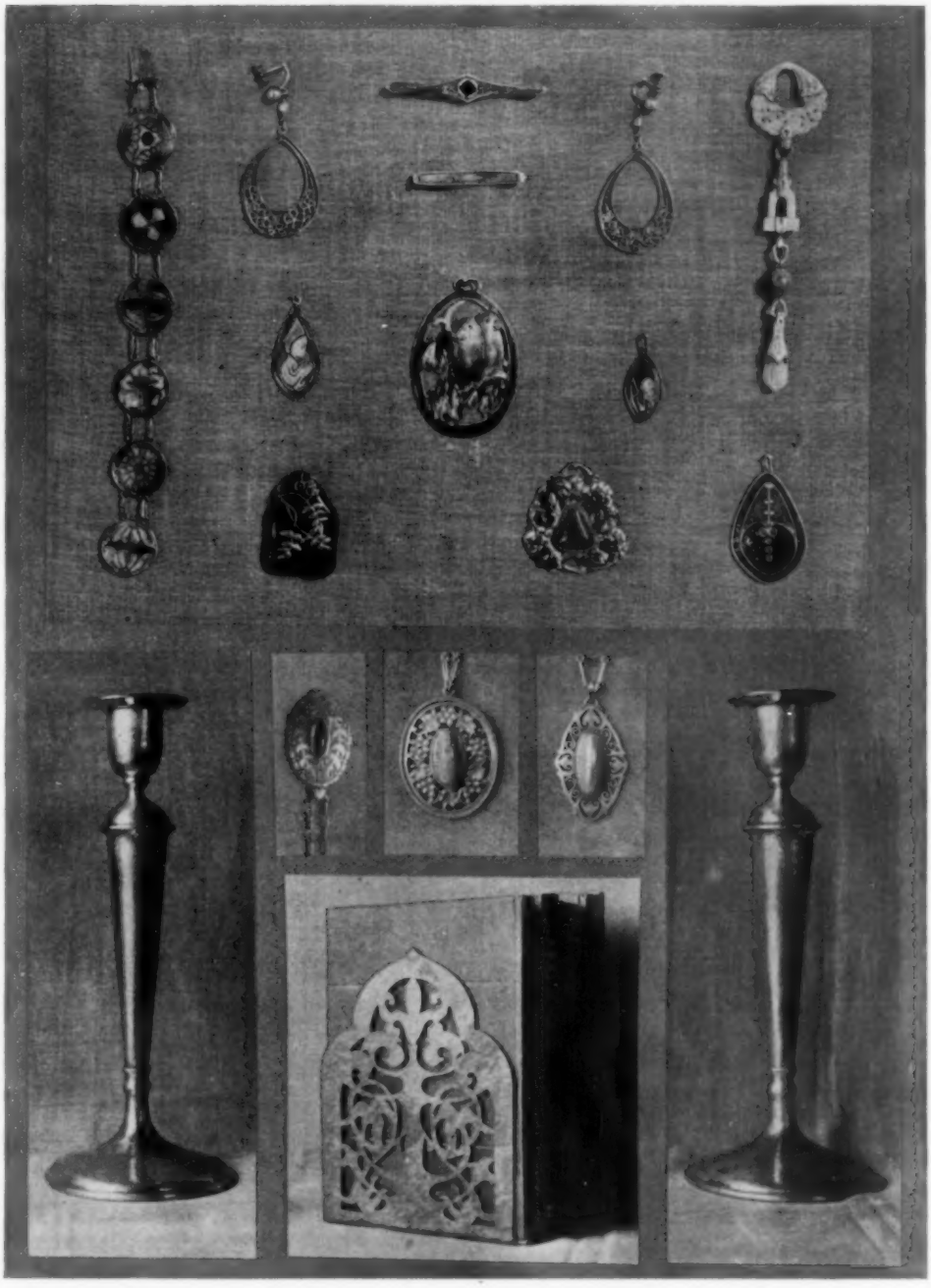
Museums of today are devoting much time and money in collecting examples of the goldsmith's art in prehistoric jewelry which vividly reflects the habits and customs of the people, and in some instances gives a continuous record of the influence of different peoples on art as they successively gained the supremacy.

St. Sophia and St. Marks possess all sorts of accessories of the altar which were made in abundance at this time. In Europe in mediaeval times, kings and princes encouraged artists everywhere, and religious houses ordered splendid works for the use of their churches, so that a large portion of the gold and silver work which now exists, made in mediaeval times, was originally for sacred use and for church decoration.

In Saxon times the abbies in monasteries encouraged the silversmith's art and the monks made ecclesiastical silver for the embellishment of the churches. At the Abbey of Glastonbury in England, St. Dunstan promoted the making of silver plate and was himself a practical silversmith. He was of noble birth but became a monk and later was exalted to the office of Archbishop of Canterbury. He was not only a silversmith but a painter, carver and musician, and because of his remarkable versatility he was chosen to be the patron saint of the goldsmiths of London.

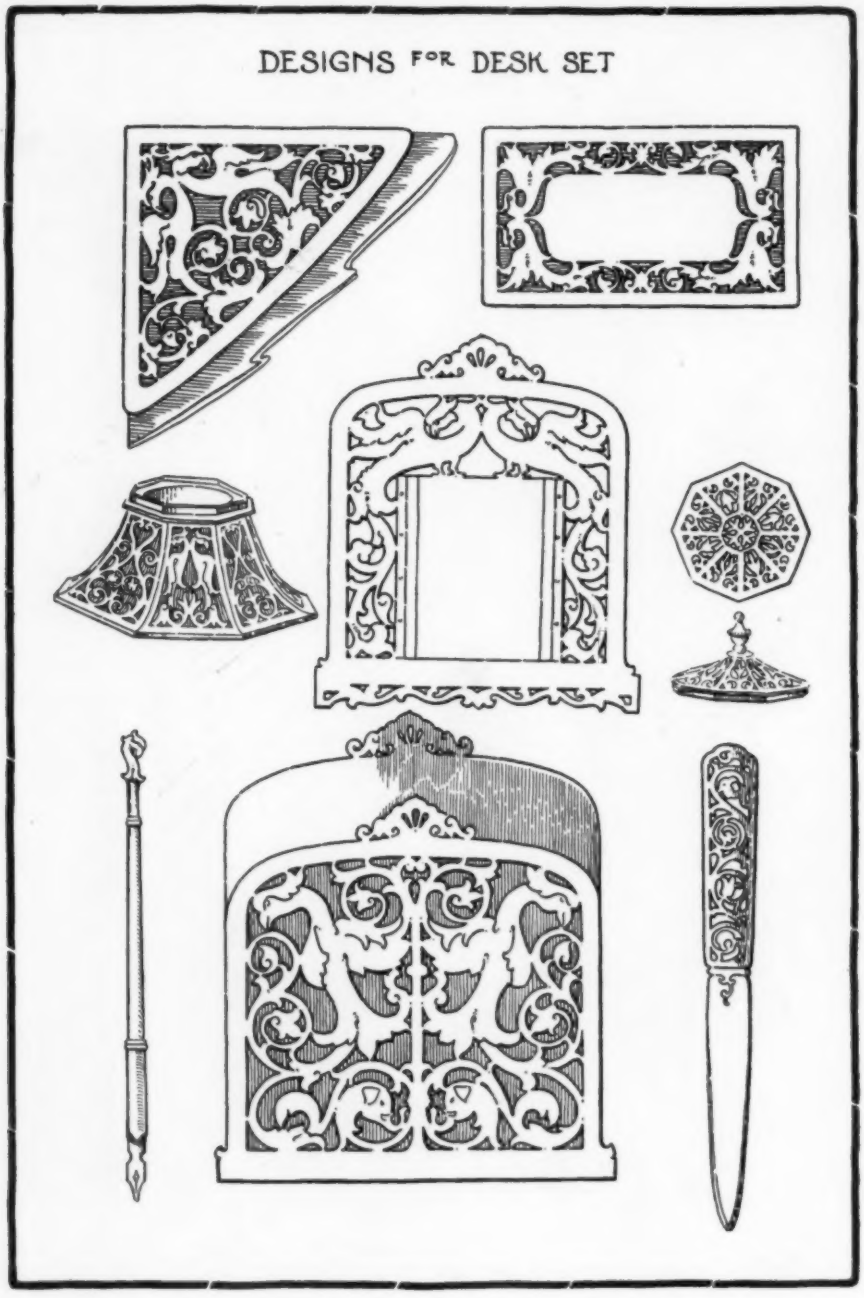
About this time silver came to be used much more extensively. The 15th, 16th, and 17th centuries produced many skilled silversmiths among the Norwegians, Germans, French and English.

Exhibitions of early American silver held in various places during the past few years has demonstrated that the art of the silversmith was highly developed during our early Colonial days. These exhibitions have been the work of American silversmiths of the 17th and

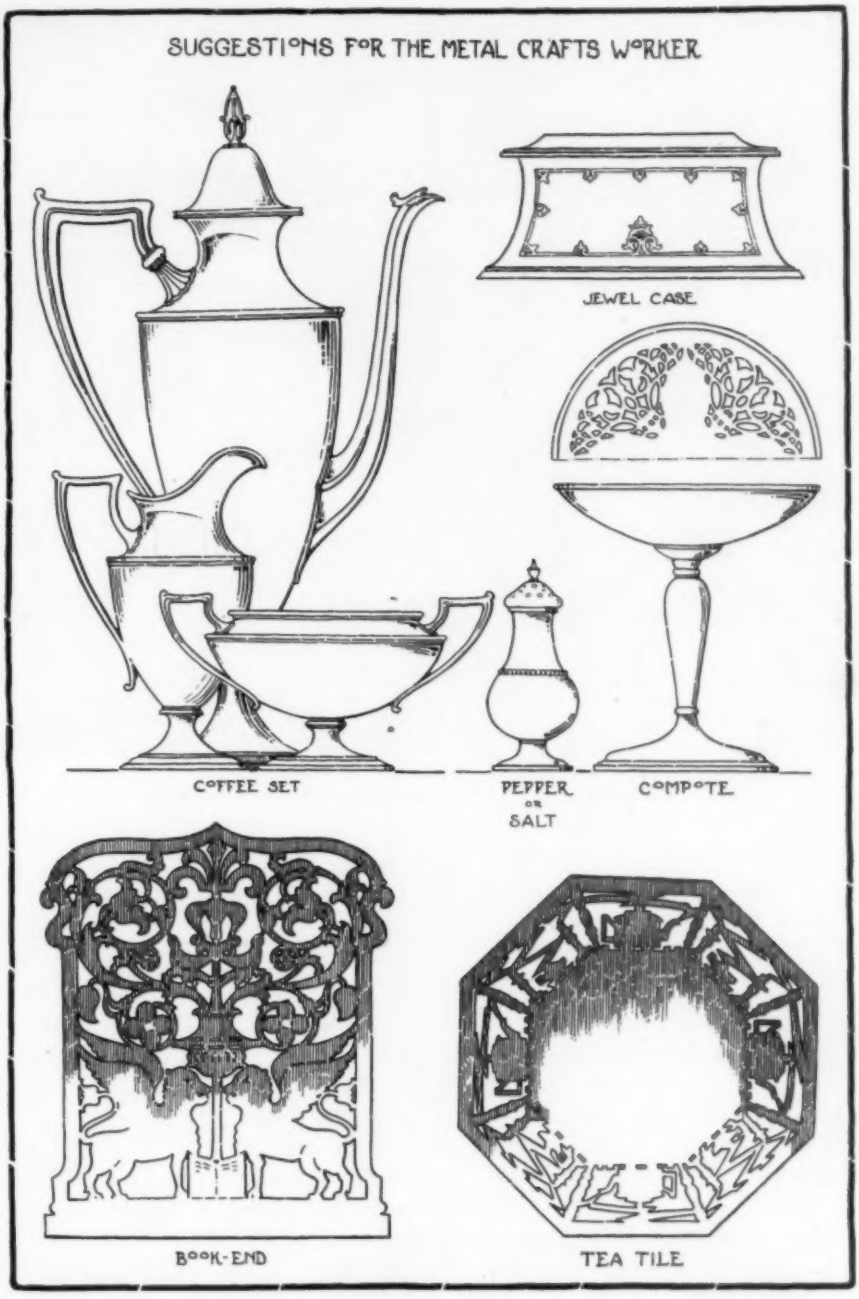


EXAMPLES OF SOME OF THE DELICATE WORK DONE IN THE RHODE ISLAND SCHOOL OF DESIGN. WORKING IN JEWELRY IS AN EXCEPTIONALLY GOOD WAY TO CULTIVATE PATIENCE

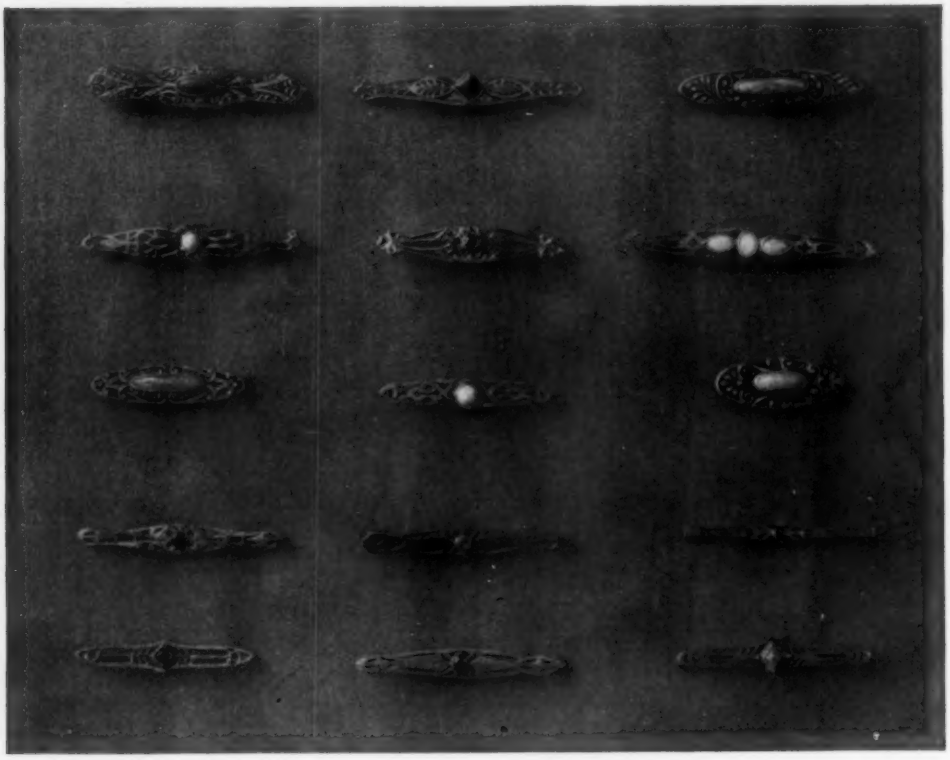
The School Arts Magazine Alphabeticon, January 1923



A DESK SET PLANNED FOR PIERCING AND SAWING, WITH A BIRD DESIGN CARRIED THROUGHOUT



SIDE ELEVATION DRAWINGS OF VARIOUS PROJECTS THAT APPEAL TO THE METAL CRAFTS WORKER



A COLLECTION OF JEWELRY SHOWING VARIATION OF DESIGN

18th centuries gathered from various sources, many of the pieces being treasured heirlooms belonging to the descendants of the original owners.

The value and beauty of gold which attracted the ancients and inspired them to make their personal ornaments of it still holds today. Although platinum has taken a limited place in the metal crafts of today, gold is still the metal most used for jewelry. The glory and beauty of its color has been referred to by many writers, who epitomize it by such expressions as "the golden morn," "waves tipped with gold," "the evening sky barred with gold." There is also a moral significance given to gold as we speak of "golden hopes," "golden dreams," "golden prospects," and the Golden Age.

Silver came into use almost as soon as gold, but because of the plentiful existence of the latter and the comparative scarceness and difficulty in obtaining the former it was not used to such an extent in making jewelry.

Fine gold or fine silver as found in nature is too soft for the goldsmith's or silversmith's use so they are alloyed with other metals to make them harder and to increase their wearing qualities. Gold is alloyed with copper in various proportions to make it either 22 karat, 18 karat, or 14 karat, as may be desired.

A HAND-WROUGHT SILVER TEA SET

The word "karat" is derived from the seed of the Abyssinian coral tree. These seeds which are small and equal in size and weight are said to be the original karat weights of jewelers. Jewelers and assayers divide the troy pound, ounce or other weight into 24 parts and call each a karat, as a means of stating the proportion of pure gold contained in any alloy of gold with other metals, this pure gold being considered as 24 karat fine. If 2-, 6-, or 10-24ths of alloy is present then the gold is said to be 22, 18, or 14 karat fine.

Pure silver has a beautiful white color and lustre and is almost as plastic as pure gold and like it, very soft. It is too soft to make durable objects and so like gold is alloyed with copper. An alloy of 925 parts fine silver and 75 parts copper is called 925-1000ths fine or what is commonly known as "sterling silver." This alloy is used almost universally for jewelry and the best silverware. One of the fascinations about work in the metal crafts is the fact that gold, silver and copper are so easily worked, especially silver and copper, that they may be worked into extremely thin sheets or drawn out into wires finer than a human hair.

Of all classes of personal ornaments the finger ring is perhaps the most interesting. Rings have been worn from the earliest times, at first as an emblem or symbol, but now more often as an orna-

THE CRAFTSMAN AT WORK

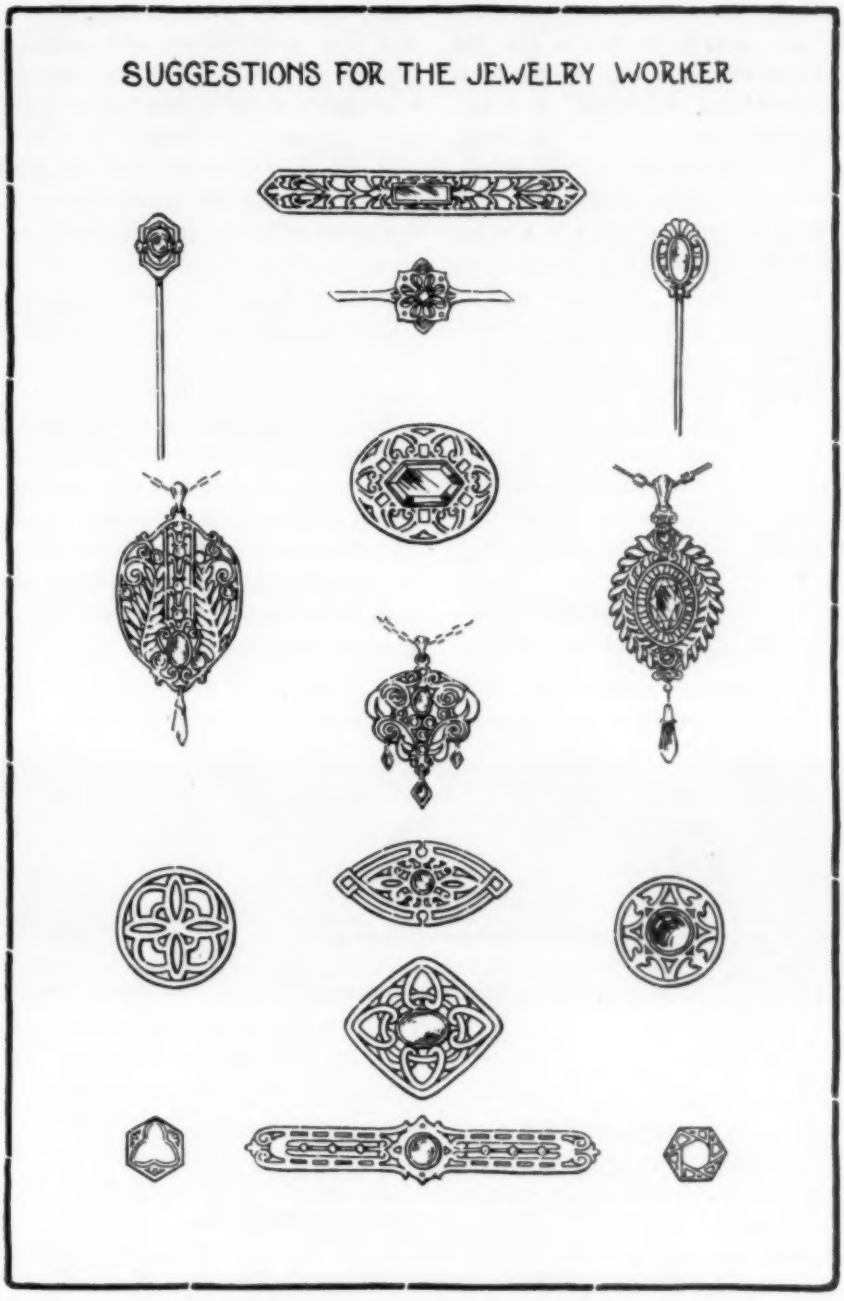
ment. Among the relics of the ancient Egyptians are probably the oldest examples of signet rings. In its earlier use it was worn to signifiy the investiture of office, the binding of the nuptial bond and as a signet, and signified a human relationship and personal appeal that the modern jewel lacks. In England at one time rings used as engagement rings were called "Posy Rings" and inscriptions were engraved on the inside of the ring similar to the following:

"In thy sight is my delight."
"God for me appointed thee."
"God did foresee that we should agree."
"I bid adieu to all but you."
"A virtuous wife preserveth life."
"Pray God to make us such a pair,
As Isaac and Rebecca were."
"We will agree in one accord,
To live in love and serve the Lord."

It is only within the past twenty years that any attention has been given to the metal crafts in this country. Today, however, the interest is so widespread that objects in metal form a large part of the stock of every arts and crafts society, and there are many of them.

The revival in the arts and crafts movement has found its way into the schools all over the country and not the least of the crafts is that of work in metal. Junior high and high school teachers find it one of the best mediums for the application of design. Schools of design and normal art courses in art schools now make this form of metal work a requirement, believing that the student of design has a better knowledge of his subject after working in some of the materials he has been designing in, and normal art courses require it because of the ever increasing demand on the teachers' knowledge of practical as well as theoretical subjects.

The personal appeal to the student is the same today as of old. The love for personal ornament is as strong today as ever and the student who can design a piece of jewelry in the design room and carry it to completion in the crafts shop has something that cannot be paid for in dollars and cents. Jewelry making, well designed and executed, becomes a fine



DETAIL SKETCHES THAT WILL HELP THE JEWELRY WORKER

art. The precious stones and precious metals are merely mediums for the expression of the craftsman who respects his material and who applies man's highest faculty, his imagination, to the design and construction of his object. It is the artist that glorifies the raw product of nature and gives it a value that no scales can weigh or gauge compute. Consequently it is the skill in craftsmanship and design together with a recognition of the qualities of the noble metals that distinguishes the ancient work. The pieces most prized today by our museums are those done centuries ago where materials played a small part, cleverness in design and workmanship being the thing most valued.

There is no other industry more dependent on the skill of the designer than that of jewelry and silverware and now with the school museum and library as a laboratory, no better environment could be had for the training of young men and women who in time will influence the output of the jewelry industry, so that the article costing but a few cents will be as good in design as the piece costing many dollars. The old craftsmen took full advantage of the native qualities of their materials and these can only be learned by daily practice in working them.

So long as a public is to be found that will purchase the tawdry five cent store variety of jewelry, the advance in the metal crafts will be retarded. It is for every arts and crafts teacher to do what he can to uphold the traditions of the past by seeing to it that whatever is done is good in design.

ALL TRUE WORK IS SACRED; IN ALL TRUE WORK, WERE IT BUT TRUE HAND LABOR THERE IS SOMETHING OF DIVINENESS. LABOR, WIDE AS THE EARTH HAS ITS SUMMIT IN HEAVEN.—*Carlyle*

The Original "El Dorado"

ROBERT F. SALADE

NO OTHER people in the history of the world ever used gold ornaments as did the ancient American Indians, particularly the Aztecs and the Incas. These golden ornaments were used for personal adornment as well as for religious articles of many different kinds; in truth, the Chocos of Columbia are known to have worshipped an idol made of gold, and human lives were sacrificed to it at certain seasons of the year.

The first people to greet Columbus upon his arrival in the New World were the Lucayos, and they came wearing gold ornaments which naturally attracted the attention of the explorers. In Cuba and San Domingo, large amounts of gold were found by Columbus and his men, but when they finally reached the mainland of Central America, Mexico and Peru, large quantities of gold ornaments and jewelry were discovered. History tells that when Columbus arrived at the Bay of Cerebaro he saw natives wearing "neck ornaments of base gold in the form of eagles, lions, and other beasts and fowls." From the house of a Chief his followers took "gold plates, little eagles, small quills which they string and wear around their legs and arms, and gold twists they put about their heads in the nature of a coronet."

Later on the white men met Indians wearing gold plates suspended from their noses, and on the west coast was discovered gold in the shape of bracelets, collars, earrings, breastplates, helmets, and "certaine barres wherewith the women bear up their breasts."

Fateful was the day for the American Indians when the strangers came and saw the glitter of the precious yellow metal on every side. The news of these remarkable discoveries soon reached Spain, and it was not long before large numbers of adventurous Spaniards were on their way to the wonderful new country in quest of treasure. When Cortez arrived on the coast of Mexico, he first sent greetings to Montezuma, and in responding the great Aztec King sent several splendid gifts to Cortez, including a "huge gold plate large as a carriage wheel, representing the images of the sun and moon, and engraved with figures of animals." It was Montezuma's greatest blunder. In due time, the Spanish conquest of America followed, and from the Aztec Kingdom alone, many millions of dollars' worth of gold was confiscated and carried away to Spain.

In 1513, when Balboa sighted the Pacific from a mountain peak in Darien, he learned of a great Indian empire to the southward where pure gold was said to be used for the construction of ordinary household utensils. These reports referred to the land of the Incas—Peru, that remarkable country which for ages stood as a symbol of unlimited wealth. The Conquest of Peru began in 1531, under the leader-

ship of Pizarro, and there the lustful Spaniards eventually found the original "El Dorado."

The scene of the renowned "El Dorado" of the Spaniards was the famous sacred lake of Guatavita, in the Peruvian Empire, where once each year enormous quantities of precious objects were cast as offerings to the gods. On these occasions it was the custom of the Inca priests to load a raft with golden ornaments, emeralds, jade, and other treasure, and proceed with the raft to the centre of the lake. The high priest was then sprinkled with gold dust until he appeared as a gilded man. Incense was burned, then the high priest, bearing the gifts of his people to the gods, cast himself in the sacred waters, and after having deposited the treasure on the bottom of the lake, the gilded man and his assistants would return to land. In this manner, untold quantities of gold, silver and precious stones had been thrown into the sacred lake from year to year, and when the Spaniards learned of this, they were overwhelmed with the "gold fever." The accounts of the tremendous quantities of treasure which were carried away from the "Land of Eldorado" by Pizarro and his army are generally known.

The conquest of Bogata, under Quesada, began in 1536, and when the ruler of this territory was compelled to surrender to the Spanish Conquerors, he is said to have sacrificed to the sacred lake of Guatavita several tons of gold and precious stones. Vast stores of golden ornaments, religious articles and jewels were also buried in the hills and mountains of this region. During the last few decades numerous collections of that ancient American gold have been excavated, and subsequently, have been placed in great museums of the world.

During the year 1920 was made the greatest discovery of buried treasure in South America that has occurred since the days of the Conquest. While working in the mountains of Colombia, not far from the district embracing the sacred lake of Guatavita, a poor peon suddenly struck a pick against the surface of a peculiar object. Upon being unearthed, this object proved to be a large-size chest of pottery, fitted with a smoothly-fashioned removable lid. When this lid had been removed, a wonderful sight was revealed: That stoneware box was filled to the top with solid gold breastplates, helmets, and various articles of jewelry which centuries ago had been worn by the Inca Indians.

Altogether, there were seventy rare pieces of gold in that chest, fifty-two of which are now exhibited at the University Museum, Philadelphia, and the others now being exhibited at the Field Museum, Chicago. Among the most interesting members of this collection are the following:

Three breastplates of thin beaten gold, 22 inches across, decorated in repoussé around the borders and across the body, having two lateral bosses, perfect cones, 6 inches in diameter and 4 inches high. The remaining plain surfaces are relieved by 12 or 15 smaller bosses. One of these breastplates has between the lateral bosses and the upper corners, in repoussé, a realistic figure of a jaguar attacking an anaconda.

Five circular breastplates of beaten gold, from 10 to 13 inches in diameter, with lateral bosses 4 inches in diameter and 3 inches high. The largest size

plate has, in repoussé, two alligators meeting at the top, and two at the bottom. One plate has a single alligator at the top and bottom and the other three plates have bosses instead of animals.

Six sheets of thin beaten gold, 16 by 20 inches in size. Two of these sheets have borders in repoussé. All have perforations across the ends for attachment to altars, house-walls or garments.

A girdle, 3 feet long and 7 inches wide, made up of 138 solid gold bars, each bar 4 inches long and tapering from ⅛ to ⅜-inch in width. These bars are arranged in two bands on three cords strung between gold beads.

Seven fan-shaped earrings of solid gold, 4½ inches wide and 2 inches high, made in fine wire filigree work and decorated along the top with birds' heads.

Six solid gold staff heads; two are of large birds, one of two birds, one a jaguar whose spots are shown as holes bored into its hollow body; two are monkeys wearing hats, seated on four-legged chairs having high backs, and holding bowls to their lips.

Six bells in the form of handbells, 2 inches high and 1 inch in diameter, having an opening along the side. Five are of gold and are decorated, one in the form of the owl woman. One is made of copper.

Sixteen solid gold staples of various sizes, from ½ inch to 1½ inches across. The two ends of each staple are expanded into flat discs.

Nine strings of gold beads; one of 41 very small bells with fine coiled wire beads between; one of 26 bells; one of 16 larger bells with cylindrical beads between; one of 33 filigree beads with plain ones between; one of 135 small cylindrical beads, and two of 24 star-shaped beads each.

Eight plain bracelets, made of a solid gold rod, ⅛-inch in diameter.

Ten gold nose ornaments; eight solid rings and two discs.

Twelve discs, or bosses, of plain gold.

A helmet of plain gold.

One fan-shaped ornament, 3 inches high and 2½ inches in diameter.

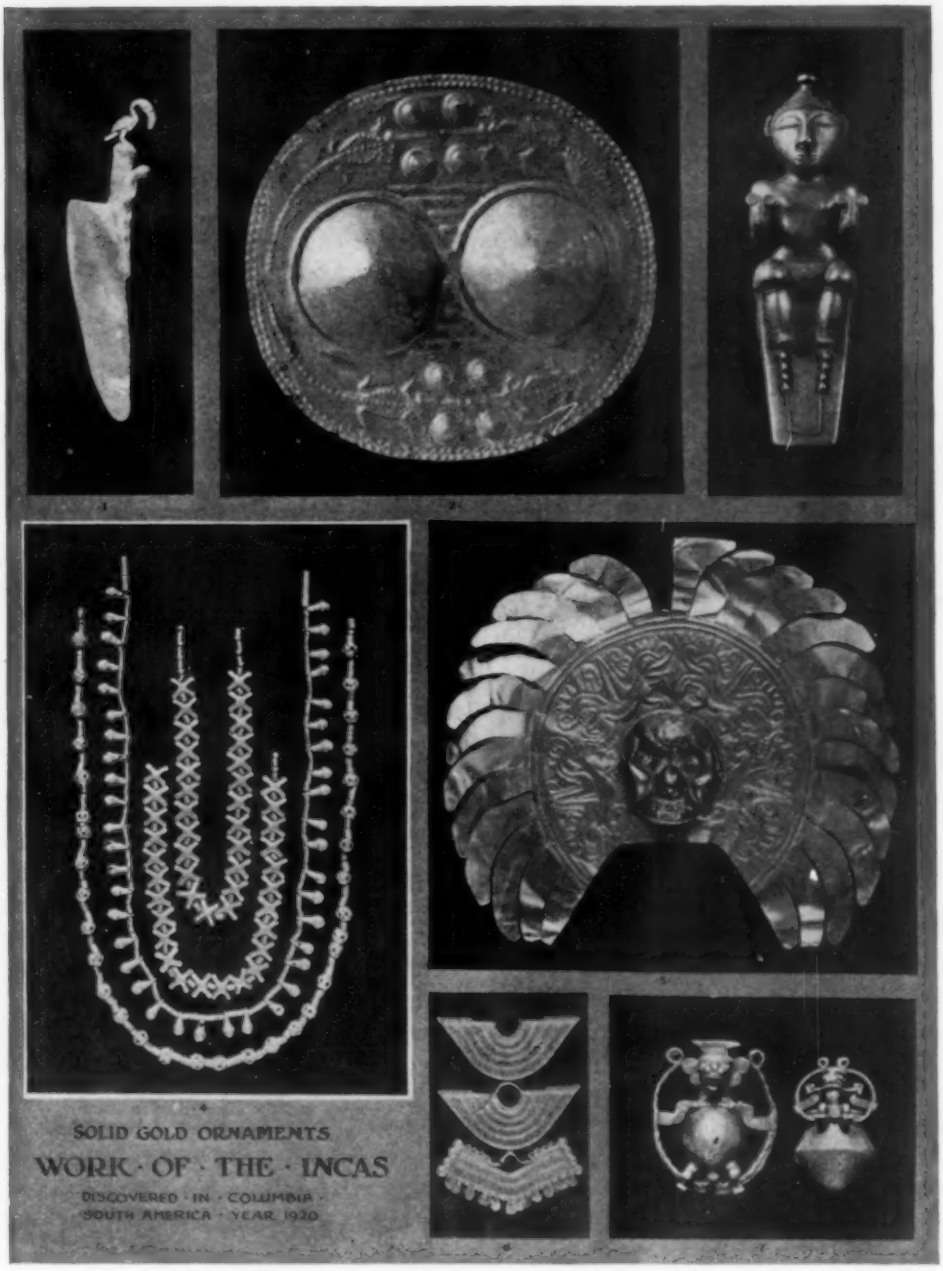
A gold arm band, 3 inches broad and embossed at both ends.

Many other pieces of ancient gold from South America, Central America and Mexico are also exhibited at the University Museum, and through the courtesy of Dr. George D. Gordon, Director of that institution, the following technical facts about the craftsmanship of the Aztec and Inca peoples are offered:

Both the Aztecs and the Incas were civilized peoples, having an excellent knowledge of architecture, sculpture, road building, metal work, the goldsmiths' art and the science of government. The same processes of workmanship seemed to have been followed from Mexico to Peru. From Mexico, an account is given of "two birds made of thread and featherwork, having the quills of their wings and tail, their feet, eyes and ends of their beaks of gold, standing upon two reeds covered with gold which were raised on balls of featherwork and gold embroidery, one white and the other yellow." Mention is also made of a fish having alternate scales of gold and silver.

The gold was obtained usually from the stream beds by certain tribes and was exchanged with other tribes for necessities. That there was considera-

AT THE TOP ARE SHOWN INTERESTING SPECIMENS OF SOLID GOLD JEWELRY WORN BY THE INCA INDIANS. IN THE LOWER SECTION ARE PERSONAL CHARMS OR AMULETS WORN BY THE INCAS. THESE WERE ALL OF PURE GOLD



EXAMPLES OF THE INCA DESIGN. 1. A KNIFE OR RAZOR WITH SERPENT AND STORK. 2. BREASTPLATE WITH ALLIGATOR MOTIFS. 3. AN IDOL OF PURE GOLD, HANDS FORWARD, BEARING FLOWERS. 4. GOLD BEAD NECKLACES, ONE OF SMALL BELLS. 5. AN INCA DEATH MASK, FACE IN REPOUSSE. 6. FAN SHAPED EARRINGS. 7. GOLD BELLS, ONE A MAN WITH A DOG'S HEAD, THE OTHER A GROTESQUE ANIMAL ON A LOOP OF COILED WIRE.

ble traffic in the pure yellow metal, and even in gold objects, is indicated by historical descriptions of the markets "where people sell gold, and near them are they who trade in jewels mounted in gold in the form of birds and animals." The ancient cemetery near Bugaba, Costa Rica, has yielded many thousands of dollars' worth of gold objects in the form of birds, frogs, fish, alligators, and numerous anthropomorphic forms with human and animal features combined, the most common being the human body with the head of an alligator, jaguar or parrot.

Various qualities of gold were employed in making the objects. In remote cases there is an alloy of silver, but in most instances the alloy is copper. The quantity varies from almost pure gold to nearly pure copper. It is believed that the workers added alloys to suit their own ideas and the requirements of the article to be formed.

In the simplest case of gold-working a single gold nugget was hammered into the shape of the object desired. Other nuggets were hammered into plates, or thin sheets, and cut to suit the purpose. Many objects have the appearance of having been soldered, but upon being broken, they show a rough fracture with pitted granular surfaces which are positive indications of casting. It seems evident that a model had been built of some plastic substance like wax or resin. Powdered charcoal was mixed with clay and was molded into the desired form on which was engraved the ornaments. Prepared wax was then applied to the details of the designs and the whole was covered with a composition of powdered charcoal and clay. The entire subject was then fired; the melted wax was run out, and molten gold was poured into the resultant mould. It was essential to break the mould to procure the cast-gold object. By this method it was possible to cast the objects which have the appearance of fine wire filigree work. Numerous articles which show intricate and delicate detail, and which appear to have been soldered together, were in reality cast in moulds.

After being cast, the objects were carefully polished on the exposed side. Figures of men, anthropomorphs, monkeys, and birds, were constructed to present a frontal aspect to view, while figures of quadrupeds, reptiles, fishes, and crustaceans present the dorsal view. After having been cast, a figure was often modified by the process of hammering, such as the flat feet of frogs and the wings of birds. Small objects were sometimes cast solid, but all the larger ones were cast hollow with an opening at the back. Important surfaces were carefully burnished.

A specimen which contains a large portion of alloy may present a polished film on its surface of almost pure gold. This result is supposed to have been obtained by coating the object with the acid juices of certain plants, and then firing it, this process bringing the gold to the surface of the object in a thin film. Frequently the film of gold is so thin as to resemble electroplating. Another method that may have been utilized, was to coat the model with gold before it was put into the mould. Thus, when the mould was filled and fired, the gold would adhere to the surface of the object, and after being polished, the object would have the appearance of solid gold. The Indians were also highly skilled in overlaying wooden objects, such as

beads, throwing sticks, etc., with gold. Moreover, they applied gold inlays to copper and other metals, all of which seems to suggest the possibility that gold was not so plentiful among the early Americans as we have been led to believe by the reports of the Spanish invaders. The truth remains, however, that the major portion of ornaments worn by the Aztecs and the Incas were made of solid gold, as were also the many different religious articles which were used in the temples.

An Ancient Art

JAMES TAIT

NIELLO is one of the most ancient kinds of decorative metal works, and in many respects is among the most beautiful. Sometimes it is taken for black enamel, but it differs from the true enamel in being metallic, not vitreous. The earliest specimen of niello-work now existing belongs to the Roman period, and some fine examples are to be seen in the British Museum. One is a bronze statuette of a Roman general, which stands almost two feet high, and was found at Barking Hall in Suffolk. The dress and armor have patterns partly inlaid with silver and partly with niello. The dark tints of the bronze rather prevent the niello from showing out distinctly. This statuette is said to be a work of the first century. Among the earlier Teutonic and Celtic races, especially from the 8th to the 10th centuries, in Britain and other countries, niello-work was frequently used to decorate the very beautiful personal ornaments of which so many specimens enrich the museums of Europe. Several interesting gold rings of Saxon workmanship have been found at different times, on which the owner's name and ornamental pattern are formed in gold with a background of niello. One with the name of Ethelwulf, King of Wessex (836-838), can now be seen in the British Museum. The metal workers of Ireland, whose skill was quite unrivalled, practiced largely the art of niello from the 10th to the 12th centuries. Fine croziers, shrines, fibulae, and objects of Irish workmaship, most skillfully enriched with elaborate niello-work, exist in considerable numbers.

From the 13th to the 16th centuries, very little niello-work appears to have been produced. About the beginning of the 18th century, however, there appears to have been a class of brooches made in the Highlands of Scotland which are sometimes termed "Glasgow Brooches" from a supposition that they were made in Glasgow, but it is asserted that one variety of them is known to have been made by a travelling tinker called Ross, who frequented the country around Killin. They were usually flat and circular in form (although I have seen them domed and with four bosses), with a pin a little less than the diameter of the brooch. The head of the pin was usually split, and a portion of the body of the brooch was cut away to allow it

to play upon a pivot which forms the junction of the two ends of the circle. Only three varieties of these silver brooches, with patterns inlaid with niello, are known. The most common is known as the T and Circle pattern, which is inlaid with niello and Runic knots, with foliage filling in the spaces. A few of them may be seen in the National Museum of Antiquities, in Edinburgh, Scotland.

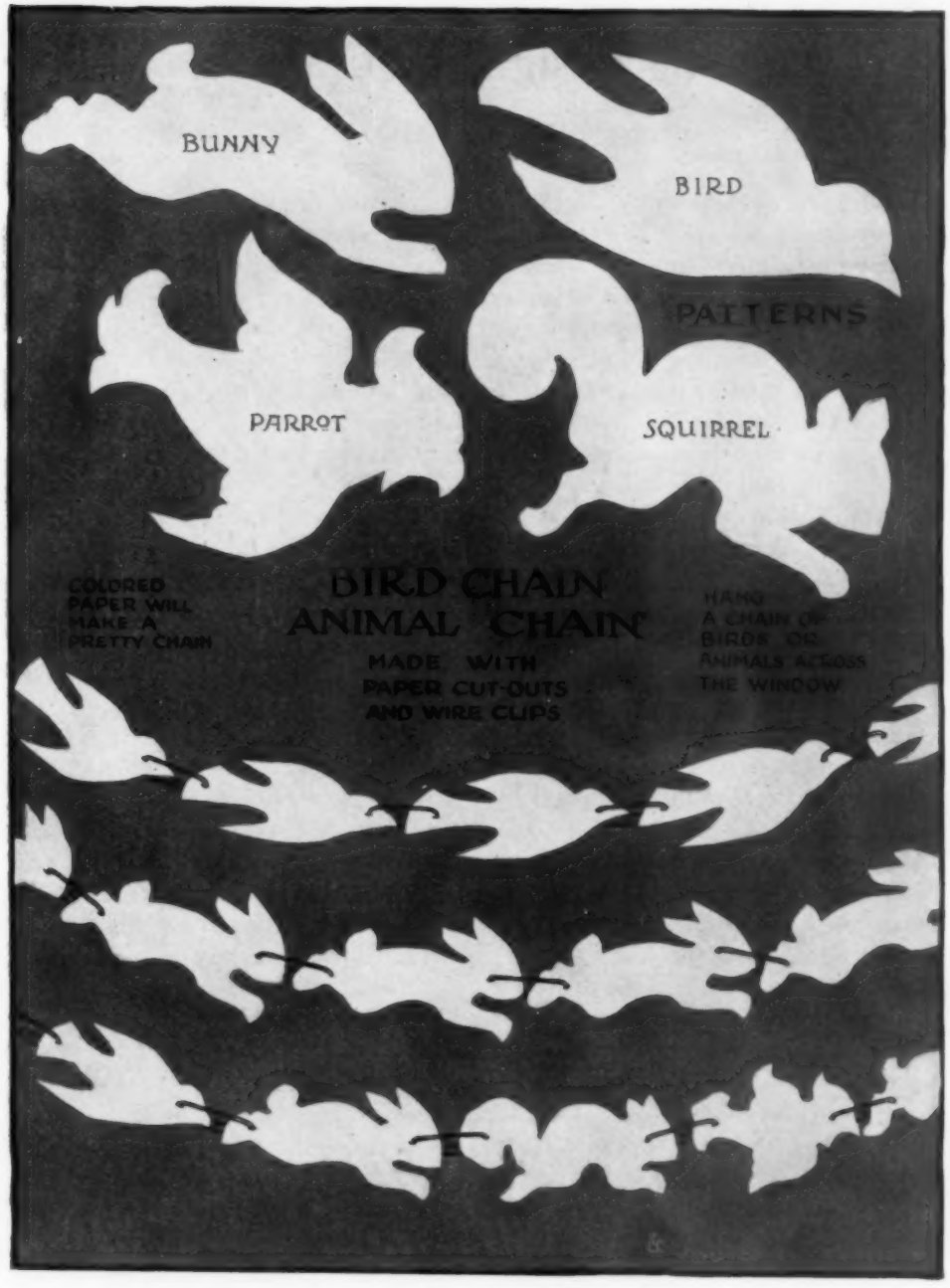
It was in Italy, however, that the art of niello-work was brought to its greatest perfection. Apart from the beauty of the work, this art had a special importance and interest from its having led the way to the invention of copper-plate engraving. Sometimes it became necessary to take proofs of the work before the lines were filled up in order to examine the effect; this was done with damp paper, the lines being filled up with a black substance and transferred to the paper. The effect of this impression on the paper is said to have suggested to Tommaso Finiguerra (1452) the idea of making prints from engraved plates, and this gave origin to the art of engraving on copper.

Benvenuto Cellini was the last great niello worker, and some of that great artist's work is still to be seen in the museums.

Russia has inherited and preserved the art of niello; her platina boxes, and the bidri work (silver on niello ground) of Bedar, in Hyderabad, India, represent the art of to-day.

About Jade

THE American Museum of Natural History contains the largest piece of jade (nephrite) ever found *in situ* and the largest ever polished, measuring seven feet long by two and a half wide, and weighing 4,718 pounds. In the American Museum *Journal*, Dr. George F. Kunz tells how he found this piece of jade some years ago in a quarry at Jördansmuhl, Silesia. Its discovery was especially interesting from an ethnological point of view, because certain authorities had maintained that all the jade objects found in Europe were of *Asiatic* origin. The finding of this great mass of nephrite, sufficient in itself to furnish material for all jade objects and ornaments hitherto found in Europe, proved that it was not necessary to assume that prehistoric jade objects were brought from the Orient in connection with race migrations.



A PAGE FOR LITTLE CRAFTSMEN. FASCINATING CHAINS OF BIRDS AND ANIMALS MAY BE MADE BY COMBINING STIFF PAPER AND ORDINARY PAPER CLIPS. USING COLORED PAPER WILL PRODUCE A WIDE RANGE OF EFFECTS

Combining Design and Craftsmanship

HARRY DIXON

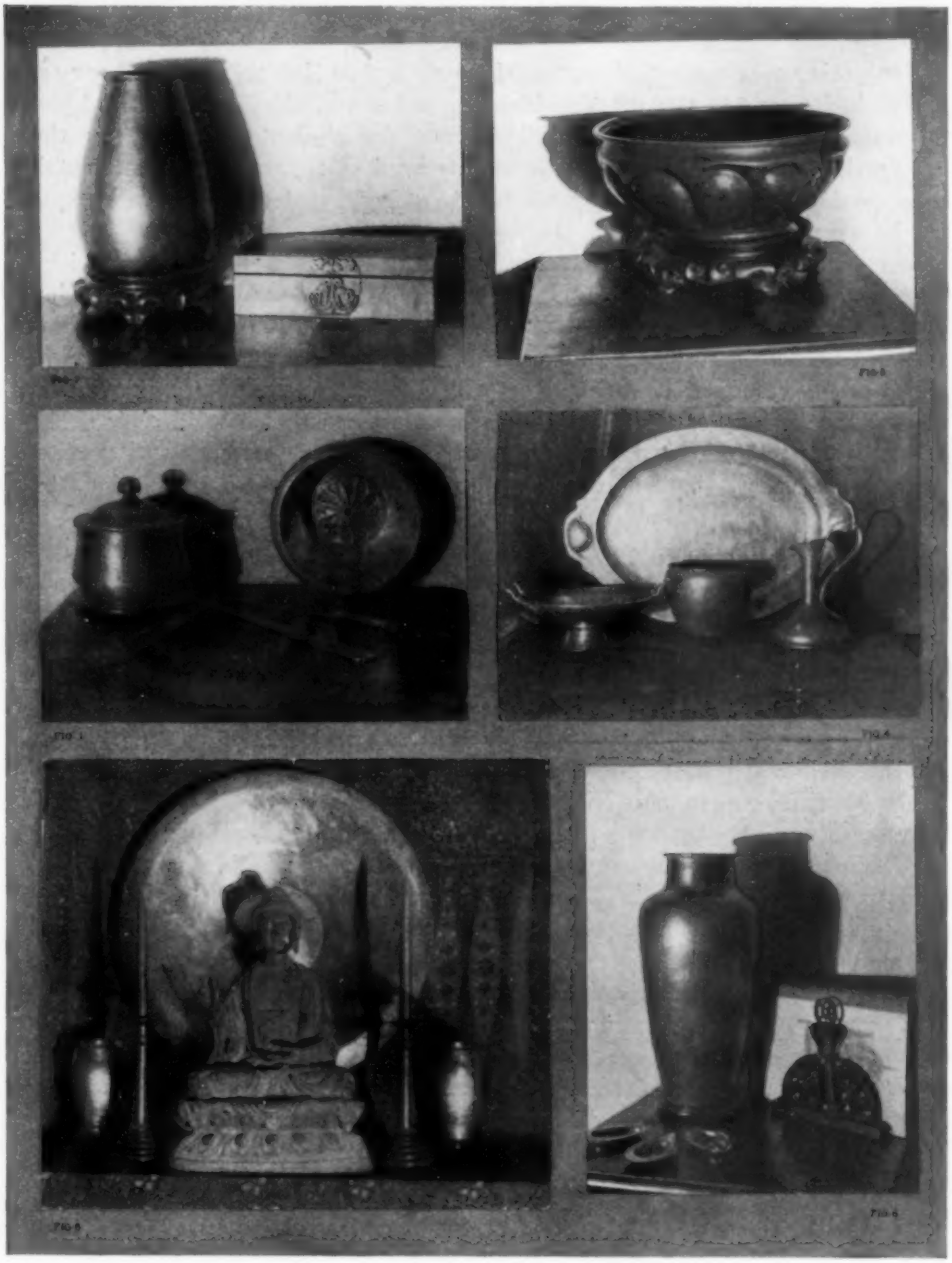
THERE is an opportunity for active teachers in design and metal work to combine their forces and to train their pupils in a true appreciation of form, and, where it can be obtained by combining the metals, of color. One of the chief aims of some teachers seems to be quantity production instead of quality, which is the result of a mistaken viewpoint. One should aim, rather, to develop all that a student has of art in him, and to teach him finessé in workmanship; if he has speed, that will become evident in time. The greatest amount of care should be taken in making the student anxious to produce, in all that he does, the finest quality of work possible.

Sloppy work is the greatest danger. Too often students stimulated solely by the desire to possess or to sell will hastily complete illy-executed articles in their days of training. Later they wonder why they cannot demand good pay for their efforts (not their quality) when they are up against the reality of making a living. From the standpoint of a beginner, it is often: "I want to make a lamp" or "a silver ring with enamel," or something equally difficult. Let the student learn first of all the grammar of the craft; that is, how to use the tools and how to develop the canny inner sense of judging the best tool for each step in the work as it develops from process to process.

Students should be first held to "flat work," such as paper knives, bookends, watch fobs, or anything which does not require manipulation except as to outline. As the student advances, he can begin to "bump." That is, the process of heating the metal in a hollow in a block of wood, or in some set form such as some craftsmen use for trays and bowls. Aim to work from the simpler forms into the more elaborate forms.

The nature of the material should be carefully considered, in designing, for different kinds of articles, the choice of metals including copper, brass, bronze, silver, steel, and iron. Some metals can be worked red hot, as copper, Tobin bronze, steel, and iron. When the metal is to be worked hot, it can be treated in any of the simpler forged shapes. Paper knives can be made like old Celtic daggers, and in more refined shapes with a variety of twistings and smithings to enrich the handles. Bowls of heavy metal, that is one-eighth of an inch thick, or even heavier metal, can be made easily by bringing the copper to a red heat and roughly beating into shape with hammer and mallet and finishing by hammering on different types of stakes.

The simplest type of paper knife is one which is cut or sawn out of metal one-sixteenth of an inch thick or thicker. This type of metal is suitable for enamelling or for inlaying, and is also pliable enough to allow considerable manipulation and working into different shapes; and with a good design and the requisite



SOME OF THE TYPE OF METAL WORK THAT THE STUDENT AND CRAFTSMAN SHOULD ASPIRE TO DO. NOTE THE CAREFUL FINISH AND WELL-PROPORTIONED FORMS.

skill the knife can be made very beautiful.

Bookends can be made of heavy metal and etched, say one-sixteenth of an inch deep, making it possible to cover different portions of the plate and etching to different depth, getting modelling which can be compared to a bas relief. Bookends can be etched out for enamelling by this method as well.

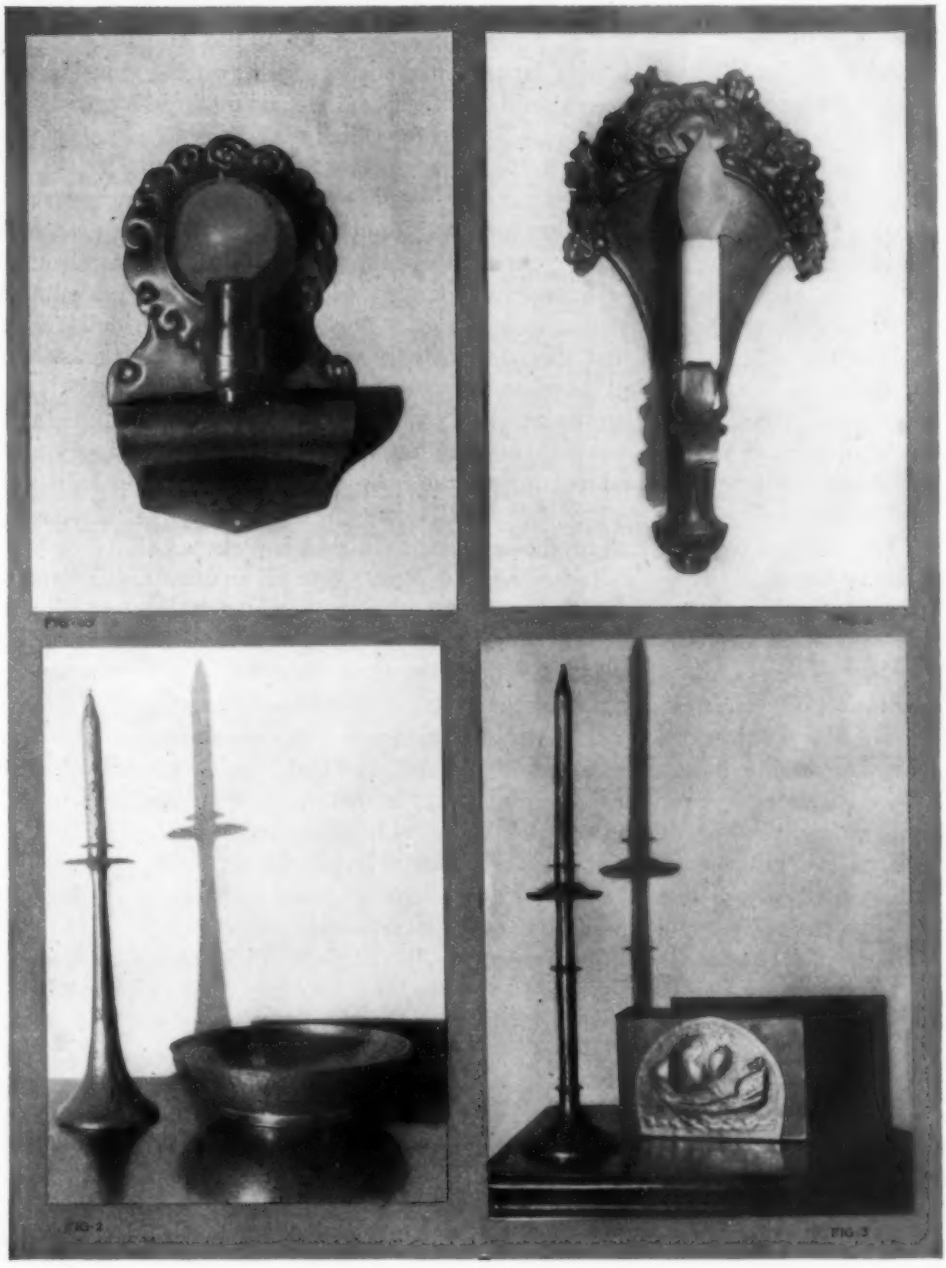
Designs can be etched into the top rims of bowls when heavy metal is used and, when the requisite heat can be obtained, the designs can be enamelled. When lighter metal is used, any of the above articles can be embossed and chased, or they can be hammered into interesting shapes, as the bowl in plate No. 5. This bowl is of copper with a rich reddish-brown coloring, a heavy rim at the top, and a heavy rim of copper as a stand. The bowl is about twelve inches in diameter, with a depth of six inches, and was made on a wood block and three different stake tools.

The jar with a cap, in plate No. 1, is of German silver. Its graceful lines are very simple, as the metal is extremely hard to work. The color of the jar is gray-brown with a silvery sheen of the alloy coming through. The bowl standing on edge, to the right of the jar is of silver, with the bottom roughly enamelled; the center is black, the radial portions are dark blue, and the triangular spots around the edge are dark and light green. The different character of the respective metals is shown very graphically by the difference of the design in each piece. Copper is the most pliable; silver, the "cream" among metals, is slightly less pliable; while the nickel-copper-iron alloy is the least ductile of all.

The bowl with the candlestick, shown in plate No. 2, is made of copper, one-eighth of an inch thick, with a heavy rim as a base. Such bowls are good problems, for students may hammer them as hard as they wish without spoiling anything except the students' complexions.

The ambitious student will wish to make a pair of candlesticks or a large serving tray. Students who are able to make a piece of work of this sort should be encouraged to do so. To make a candlestick entails considerable skill on the part of the student; so it makes a good test piece for an examination. The copper candlestick shown with the bowl, plate No. 2, is in five pieces, with a chased design on the top of the base and on the bottom of the drip cup. The pair shown on plate No. 3 with the galleon bookends is also of copper, fastened as pipe is fastened together with a "cup-joint," as in shipyard work, and soft-soldered instead of brazed. The pair of candlesticks in the group with the Buddha, plaque, and jars, in plate No. 8, is made in what their maker, Mrs. Dixon, calls the Pagoda design. The candlesticks, colored a rich brown and heavily waxed to prevent oxidizing, are made of copper. The whole group shows how copper can be grouped to enhance a rare bronze, or a piece of Javanese batik.

A pair of copper jars in a silver tone, in plate No. 8, show a simplicity of line which is both graceful and effective. Plate No. 6 shows a tall jar, made of brass, and colored a rich golden brown, with the brass showing through as an undertone. Plate No. 7 shows a copper jar, with a chased design at the top; the design was chased while the jar blank



WORK DONE UNDER THE DIRECTION OF MR. AND MRS. HARRY DIXON. DETAIL DESCRIPTIONS OF THESE ARE FOUND IN THE TEXT.

was a flat piece, the bottom being drawn in to make the form.

Beside the jar in plate No. 7 is a large cigar box with a cloissone design, acting as a snap catch. There is a wide variety in the designs which can be made in this way, and any clever student can get very pleasing designs for catches, or for decorations to pad corners, for round box covers, or for any spot which seems to call for decoration. A peculiar thing in these applied designs is that they do not seem to *be* applied, but have the appearance of being an integral part of the whole. Such designs make an excellent exercisein patience and ingenuity prior to enamelling.

Three kinds of paper knives are shown with the German silver jar, and silver bowl, one, a peacock design in blue and green enamel; another, a heavy blade of German silver; while the last is an adaptation of a cast piece to a blade.

Plate No. 4 shows a compote with a heavy rim, ending in handles, which are riveted to the bowl part, a jardinière and a pitcher and tray—all of copper. The neck of the pitcher is brazed to the bottom part; within it is block tinned. The tray is of a simple design with handles which combine ease of grip with the maximum of rigidity necessary to the weight of metal used; it is colored silvery black with an undertone of copper showing through.

The bookends shown in plate No. 3 are the galleon and are etched and then embossed with a hammer from the back and finished off on the front with hammers and mallets of different shapes. The bookend with the large jar and three small trays, in plate No. 6, is a scroll work made of copper with a removable paper knife and other features. It is a patented design. The three small individual trays for smokers are made to fit one inside the other, and can be made in a variety of forms which may be both pleasing and practical.

While some of the articles shown are too far advanced for some students, still there are others which can be executed by any student with determination and skill. A clever student can make such articles as the paper knives, the etched bookends, the covered jars, the large box, heavy copper bowl, compote, and nested ash-trays. The pair of jars and the large plaque in the group with the Buddha can be made by a student who has both skill and strength.

Some electrical fixtures are shown in plates Nos. 9 and 10, both of which are embossed and chased in different degree. The more elaborate one is of copper, multi-colored, and the other is of brass, toned to a soft pinkish brown, with the brass as an undertone. Electric fixtures take a greater degree of skill and workmanship than most students possess, plus a knowledge of the restrictions in design required by the necessities of safety.

All the electrical fixtures shown, however, can be made under proper conditions, and with proper care and tools. The actual tools should not cost much. Too often tools are bought which are good to look upon, but which are almost useless from the standpoint of actual utility. There are a few good general designs which are most satisfactory.

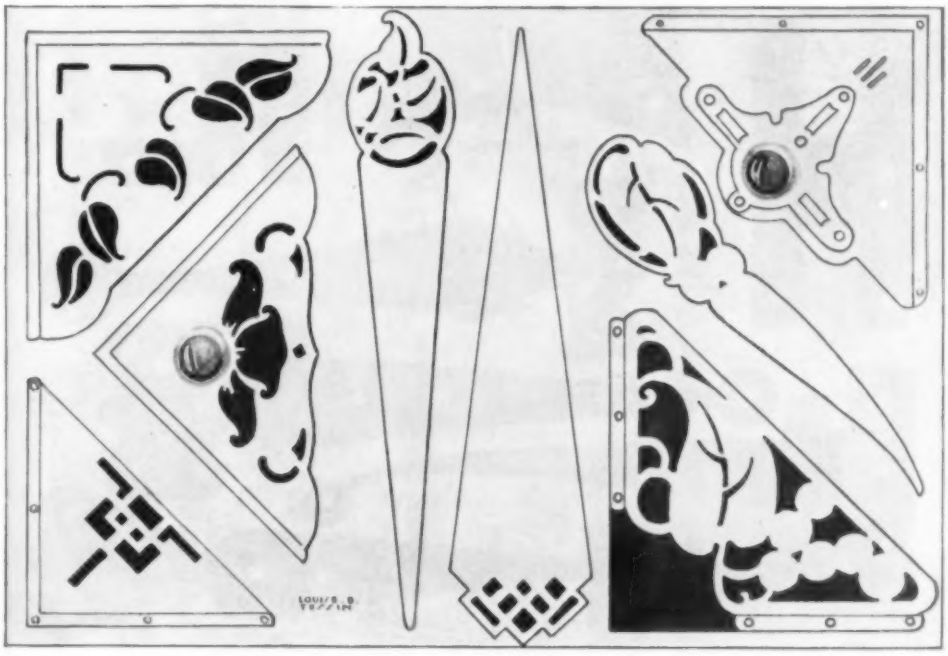
A good sequence of problems leading up to the above articles is a variation of paper knives, fobs, and other flat work with the required manipulation to adapt them to enamelling, etching, embossing,

or chasing. Bookends, which can be made in a great variety of forms and materials; trays, small, medium-sized and large. These can be decorated in a variety of ways, such as etching, enamelling, saw piercing, chasing, and embossing. Bowls can be made almost any size and shape and decorated in any way except—heaven forbid!—with a lot of extraneous stuff, such as metallized acorns, pine cones, and eucalyptus buds and so forth *ad nauseam!*

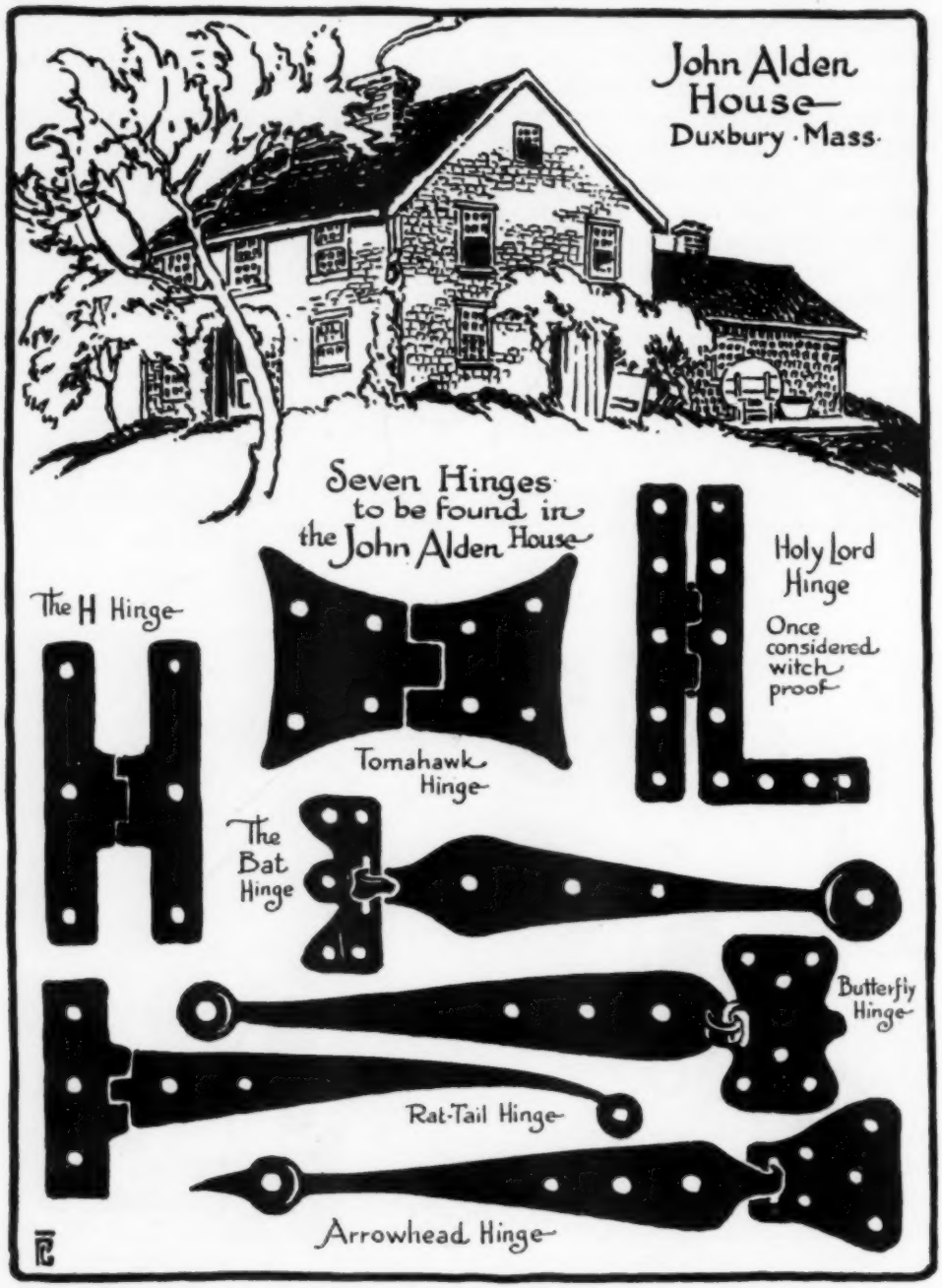
Jars, which are harder to make, do not allow of so much scope in decoration, their beauty lying in grace of line, proportion and finish. While on the subject of jars, it might be well to suggest that notice be taken of color and finish in Chinese and Japanese brasses and bronzes.

Once a student has learned to handle tools and metal, it becomes possible for him to learn to design intelligently and to execute his designs in a creditable manner. Too much stress cannot be laid on good and suitable design for the material used, and for the utmost care in the making of the paper of metal patterns used. A poorly made drawing plus a sloppily made design, carelessly applied *cannot* be expected to make a finished product of the required fineness.

Again, let us urge quality first, as the speed will come of itself.

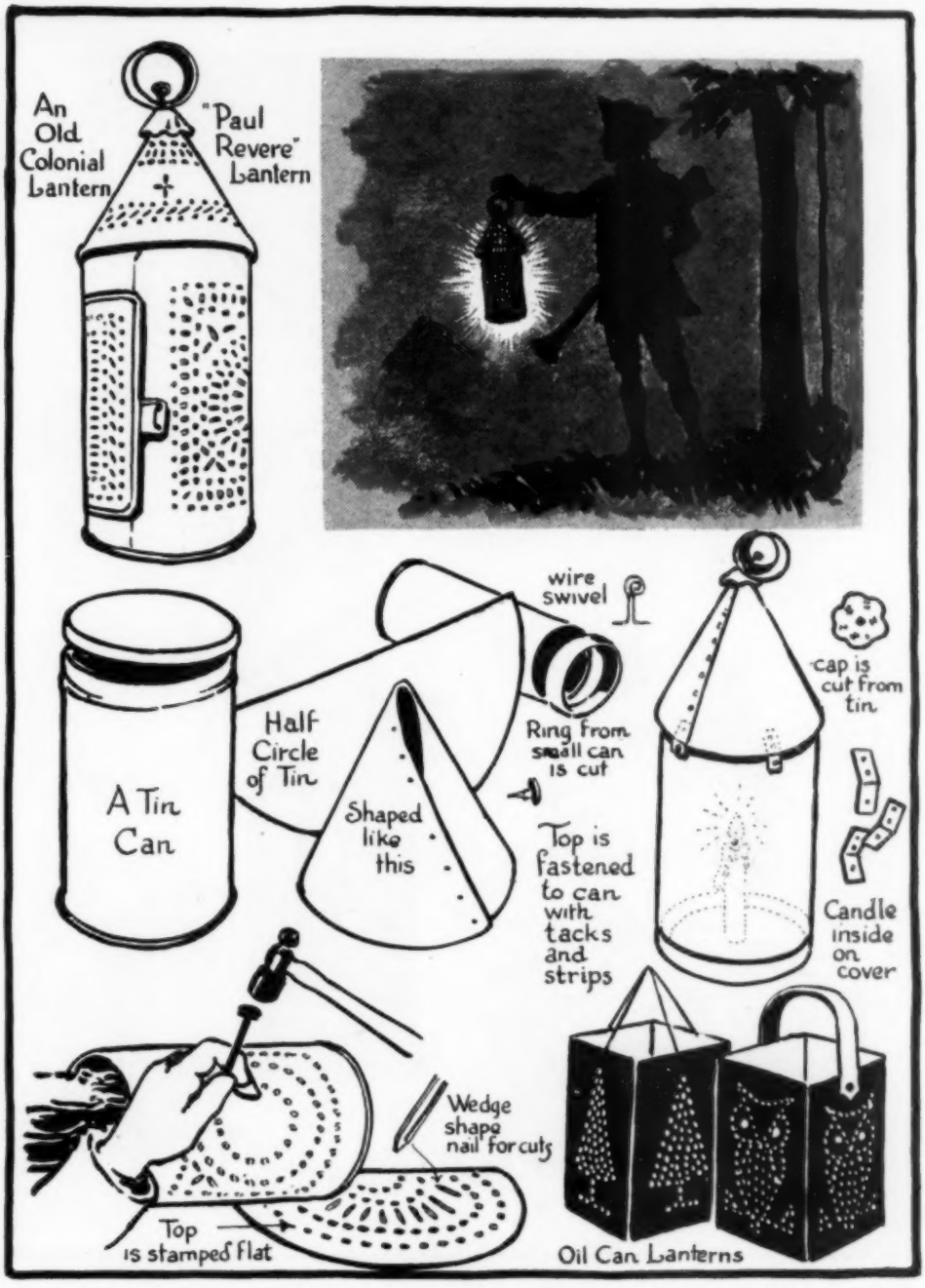


SUGGESTIONS FOR DESK SET DESIGNS BY LOUISE D. TESSIN.
FIVE DIFFERNET BLOTTER CORNER DESIGNS ARE SHOWN

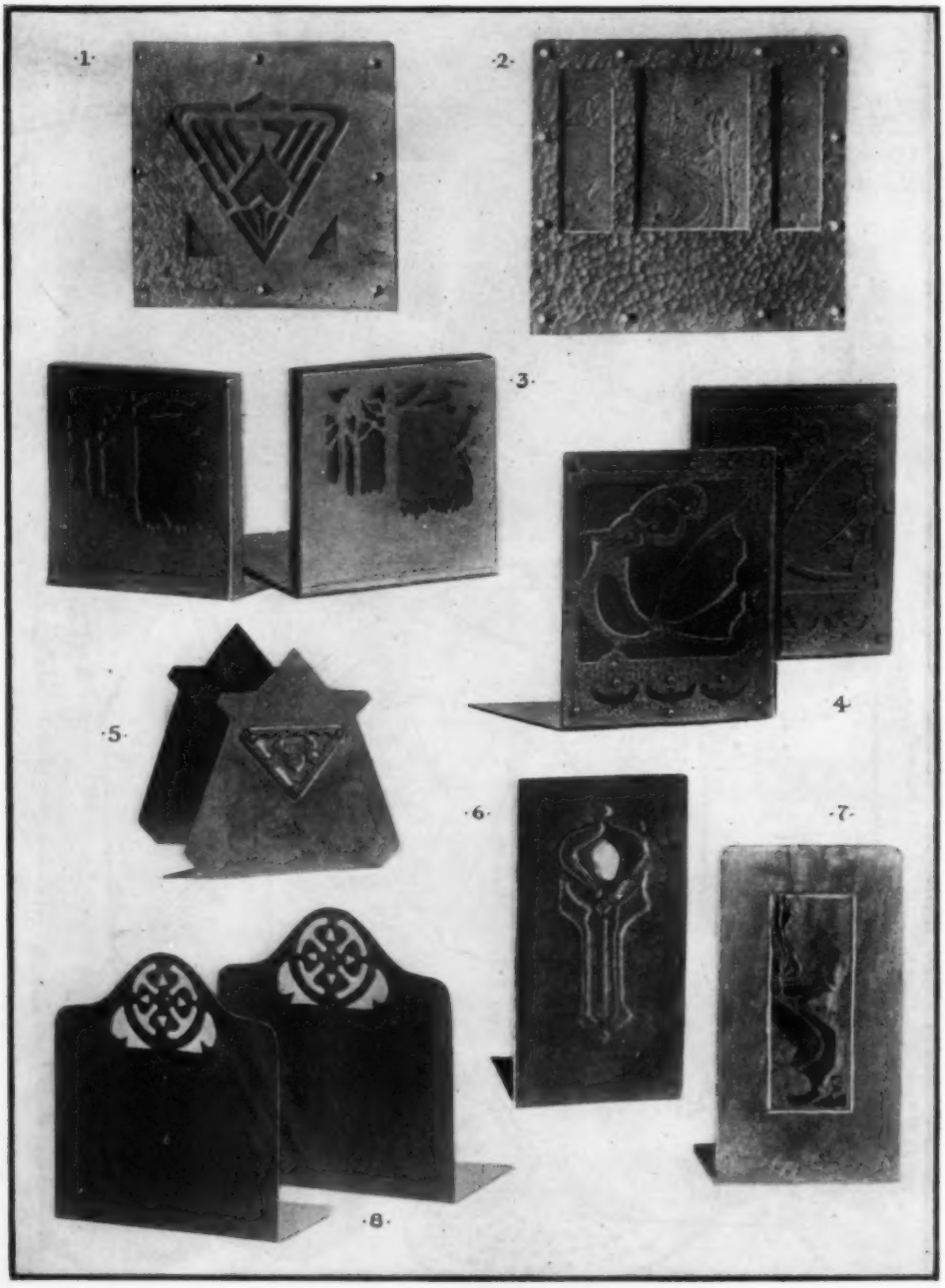


SUGGESTIONS FOR THE METAL CRAFTSMAN. OUR EARLY SETTLERS WERE GOOD DESIGNERS AS IS EVIDENCED IN SUCH OBJECTS AS THESE. THE SEVEN VARIED TYPES ARE ALL FOUND IN THE JOHN ALDEN HOUSE

The School Arts Magazine Alphabeticon, January 1923


An Old Colonial Lantern
"Paul Revere" Lantern
wire swivel
cap is cut from tin
Half Circle of Tin
Ring from small can is cut
A Tin Can
Shaped like this
Top is fastened to can with tacks and strips
Candle inside on cover
Wedge shape nail for cuts
Top is stamped flat
Oil Can Lanterns

OLD COLONIAL LANTERNS WERE MADE OF PERFORATED METAL. GOOD SUGGESTIONS FOR MAKING SIMILAR LANTERNS ARE SHOWN ABOVE. THIS IS A GOOD PROBLEM FOR AMATEUR METAL WORKERS



BOOKENDS FROM THE SHOPS OF DIRK VAN ERP, SAN FRANCISCO, CALIFORNIA. 1. METAL AND STAINED GLASS. 2. METAL AND TOOLED LEATHER. 3. METAL AND TILES. 4. PIERCED DESIGN OVER FLAT METAL. 5. SMALL PIERCED MOTIF RIVETED ON. 6. ETCHED DESIGN WITH GLASS INSET. 7. ETCHED AND REPOUSSED. 8. PIERCED MOTIF.

The School Arts Magazine Alphabeticon, January 1923

New Year Messages

FROM EIGHT OF AMERICA'S LEADERS IN ART EDUCATION

"CONGRATULATIONS UPON BEING ALIVE IN 1923 WITH A CHANCE TO HELP MAKE IT A BETTER YEAR THAN THE BEST YET."

HENRY TURNER BAILEY
DIRECTOR
CLEVELAND SCHOOL OF ART
CLEVELAND, OHIO

CONGRATULATIONS upon being alive in 1923, with a chance to help make it a better year than the best yet! The old world is a turn nearer to the time when Science shall be known as the sense making love to the All, and Art be known as the soul making love to the All, and Religion be known as the marriage of man with the All, as Sidney Lanier says,

"And the Time in that ultimate prime shall forget old regretting and scorn,
Yea, the stream of the light shall give off in a shimmer the dream of the night forlorn."

No matter how humble you feel yourself to be, you can help.

Henry T. Bailey

New Year's Greeting to all who are teaching Art. "Now, all together."

A W Dow

Teachers' College, Columbia University.

"LET US FIND THE ART POINT OF VIEW OF THE LARGE MAJORITY."

WALTER SARGENT
DIRECTOR OF ART
UNIVERSITY OF CHICAGO
CHICAGO, ILLINOIS

LET us as art teachers, make a genuine effort this year to gain a knowledge of that thing most difficult for us as specialists to appreciate, namely, the point of view of the large majority to whom interest in art, if it exists at all, will always be a secondary thing. If we can do this, then we shall be able to make art an important influence in their lives, even though it remains a secondary influence.

We shall not succeed in this by trying to make art a primary interest for these people. We must find out its true place in their lives. We must learn the way by which they arrive at artistic interest and equipment. It is not always, perhaps not often, the same way by which those with special talent arrive, but it is nevertheless a way worth knowing.

"BE THANKFUL FOR THE WORK OF GIVING TO BOYS AND GIRLS THAT MAGIC SOMETHING WHICH MAKES THEM LOOK HIGHER THAN A DOLLAR MARK."

FRANCES H. BACHELER
PRESIDENT, EASTERN ARTS ASSOCIATION

"Thankful? Yes, indeed, I am!
And aren't you thankful too?
I find so many reasons
And one of them is You" (SCHOOL ARTS MAGAZINE!)

A RHYME I could not resist quoting though sometimes we are all so busy that it is easy to forget to be thankful. Just at present I am thankful for conventions, teachers' meetings, teachers' magazines, "staying after school" and bothersome (sometimes) pupils' so called clubs. The reason is that these things are helping me to hand to boys and girls that magic something which makes them look higher than a dollar mark, which makes them proud of work and quick to respect other's achievement. So much can be made of a seemingly chance point of contact with a pupil that—suddenly a thirst for perfection of work and acts is born. If the class is catching the idea it not only shows in the lesson but years after in the new home with its selections, in mature judgments and in the whole art of living.

And so I am thankful for these humdrum things and particularly for conventions. That is where "live coals" are passed out. It is a great sign for the profession that we are realizing this and breaking all records of convention attendance. It is the "everybody going" and going for the best time of the year that puts that indefinable stimulus in the air of a convention be it weather as bright as ex-president R's smile or a regular E. A. A. downpour.

Oh,—I've talked too long—but our Providence Eastern Arts Convention promises to be—well, come early! You will have to wait until May 3, 4, 5, 1923!

Frances H. Bacheler.

"THE KEY TO HAPPINESS IS TO BE FOUND IN SERVICE AND WHERE CAN BE FOUND GREATER OPPORTUNITY FOR IMMEDIATE AND TANGIBLE SERVICE THAN IN THE ART DEPARTMENTS OF THE SCHOOLS?"

ESTELLE HAYDEN
PRESIDENT, WESTERN ARTS ASSOCIATION

IT IS a pleasure and a privilege to extend to the readers of THE SCHOOL ARTS MAGAZINE wishes for another Happy New Year. Being fairy wishes they cannot fail to come true.

The key to happiness is to be found in service and where can be found greater opportunity for immediate and tangible service than in the Art Departments of the schools?

Daily, requests are presented for one thing or another. Posters, showcards and signs probably head the list. Booklets come in a close second and are followed by requests for suggestions for hanging pictures, arranging rooms, planning to make school grounds more attractive, designing graduation programs or illustrating the history lesson, or the school annual, until our ingenuity is taxed to the limit to get the time to meet all the demands.

I would not be understood as thinking that the art department is justified in simply performing a series of stunts. Let us read into these requests the opportunity to develop through "purposeful activity" a conception of the joy of service and the significance of labor and to develop desirable mental attitudes along with the subject matter and the technical skill necessary for the accomplishment of the purpose.

It seems to me that never in the history of art education in the schools of this country has there been finer opportunity for the teachers of Art to contribute to the field of education from their beautiful and vital subject. Therefore a Happy New Year to everyone. Sincerely yours,

Estelle Hayden.

"I WISH FOR YOU THAT YOU MAY BE CONVINCED OF THE GREATNESS OF YOUR WORK AS I AM. THERE IS NOTHING FINER."

ROYAL B. FARNUM
STATE DIRECTOR OF ART EDUCATION
MASSACHUSETTS

TO THE Art Teachers of America:–

GREETINGS! and Best Wishes for Health and Wealth and Happiness, though I expect that wealth is really too much to expect for any teacher. But if there is one wish of all others that I would wish for you it is that you may be as convinced of the greatness of your work as I am. There is nothing finer. It is education and religion and economics and sociology and science and everything else that is good all wrapped up in one.

ALL HAIL! for 1923 is to be the greatest year in history for the advancement of our profession. In the first place I have at last met the Editor and so I predict accurately. In the second place the public is awakening, a statement easily proven were there space. And in the third place we are going to preach the sane truths of Beauty through drawing and design, with their applications, in a more intensive and vital, though less spectacular, way than it has ever been done before.

HERE'S (*with spring water*) to the most effective and wonderful of all years—1923!

Royal B. Farnum

"YOUR CHOSEN WORK OUGHT TO GIVE YOU THE GREATEST HAPPINESS POSSIBLE IN A TEACHER'S LIFE, FOR YOU HAVE THE WONDERFUL OPPORTUNITY OF TEACHING HUNDREDS AND THOUSANDS OF CHILDREN TO SEE BEAUTY IN THE WORLD ABOUT THEM."

WALTER SCOTT PERRY
DIRECTOR OF
SCHOOL OF FINE AND APPLIED ARTS
PRATT INSTITUTE
BROOKLYN, NEW YORK

HAVING had the rare privilege through a long series of years of helping to train a great number of supervisors and teachers of drawing and art appreciation who have filled, all told, over fifteen hundred positions, I am pleased to extend the heartiest of New Year Greetings to them and to all teachers of art in the public schools. What I would say to all now, I have said every year to every graduating class. "Your chosen work ought to give you the greatest happiness possible in a teacher's life for you have the wonderful opportunity of directing and training hundreds and thousands of children to see beauty in the world about them, to open their eyes to the beauties of nature, landscape, trees and flowers, to teach them to see with the eye and to express with the hand beautiful form, shape, and line, and with it all to be a real power for good to all the teachers of your town or city, and to the entire community in which you live and work." No teacher, I believe, has such a wide and wonderful opportunity for individual and community work and for doing good in so many ways as the unselfish art teacher with a sensitive soul yearning to make life and work more joyous.

When we think of the lack of interest in the subject of art education and the little done in this and kindred subjects only a comparatively few years ago, what is now being done throughout the country seems nothing short of marvelous, for through the support of school boards and superintendents and by the money generously appropriated for your work, literally millions of children are now receiving the benefits of your instruction.

That the New Year may bring greater happiness to you, with a broader view still of your work and wonderful opportunities, is the wish of a fellow instructor having the privilege of knowing personally many hundreds of art teachers, and the splendid work they are doing.

Walter Scott Perry.

"ART EDUCATION IS MAKING GOOD. EVERYWHERE ONE SEES ART ATTAINING A HIGHER REGARD."

C. VALENTINE KIRBY
STATE DIRECTOR OF ART
PENNSYLVANIA

THE optimist and the pessimist have long been objects for human jibes and it has been said that a pessimist is one who is obliged to endure the society of the cheerful optimist. The pessimist, however, is a creature generally disliked and unloved. So let us all be optimists.

It is true that special workers in the field of Art Education have had good reason in the past to feel dispirited because of the comparatively unimportant pigeonhole to which they were frequently assigned in the educational desk. This condition prevailed to some extent because the specialist was oftentimes a temperamental individual with head in the clouds far above a sympathy for an Art that had grown out of human needs and spiritual hungers, and which needed to be explained and interpreted in terms of human understanding and our needs of today.

For one cause or another workers in other fields have failures and discouragements faced.

Behold now a new day for Art Education. The Specialist is becoming an indispensable member of the Superintendents' Staff. The Superintendent is becoming an educator with a new vision towards Art and a more complete education. The teacher is losing her fear of the subject and through her "millions of children are carrying lessons of beauty into millions of homes." Art Education is making good. Everywhere one sees Art attaining a higher regard, for it is being woven into the fabric of our social, industrial, and commercial life by the teachers and the boys and girls in our public schools.

C. Valentine Kirby

"IN THE MATTER OF GOOD TASTE A HIGHER AVERAGE NOW PREVAILS IN THIS COUNTRY THAN IN EUROPE, AND THE REASON I ASCRIBE FOR THIS IS THE TEACHING IN THE PUBLIC SCHOOLS."

LEILA MECHLIN
SECRETARY OF THE
AMERICAN FEDERATION OF ARTS
WASHINGTON, D. C.

AFTER traveling in Italy, Switzerland, France and Great Britain this summer, and taking careful note of contemporary production, I came quite definitely to the conclusion that in the matter of good taste a higher average now prevails in this country than in any of those named, and the reason I ascribe for this is the teaching in the public schools.

Of course I do not mean to infer that our people are yet as sensitive to beauty or as appreciative of art as the peoples of the old world where, for generations they have been steeped in the best traditions and have lived in everyday contact with the finest art that man has produced, but in the matter of present day manufactures, in which artistic design is an integral part, in the matter of home building and decoration, it seemed to me that we were considerably in advance.

Mr. Reginald Grundy, the distinguished editor of *The Connousseur* magazine, published in London, told me that he was very certain that we were on the eve of a renaissance of art in America, in fact he was inclined to believe that this renaissance had already begun. I am firmly convinced that no single group of people have done more, or can do as much, to bring this about as the teachers in the public schools of the United States, who, through personal enthusiasm as well as trained knowledge, are cultivating among the masses discriminating taste.

Leila Mechlin

A PAGE OF SIMPLE OBJECTS IN METAL WORK, ALL SUITABLE FOR BEGINNERS. MADE BY PUPILS OF FREMONT HIGH SCHOOL, OAKLAND, CAL., UNDER THE DIRECTION OF WILLIAM S. RICE

The School Arts Magazine Alphabeticon, January 1923

Metal Work in Home Decoration

DOUGLAS DONALDSON

NEVER before has there been such a wave of interest in the decorative arts, particularly in their relation to home decoration. That the influence of this interest is being felt in the field of art metal work is evidenced in the improving quality of both design and workmanship in metal objects produced by American artists.

There was a time, some years ago, when interest in metal work amounted to little save "faddism." During this "Arts and Crafts Epidemic," many people, anxious to call themselves craftsmen in the arts, dabbled energetically into everything from burnt leather fancies to brass candlesticks. Such fiddling, and the false reputations built up with it, are things of the past, although many craftsmen still feel the effects of the terrible experience. (There are still those who look with suspicion on one who admits interest in the arts and crafts.)

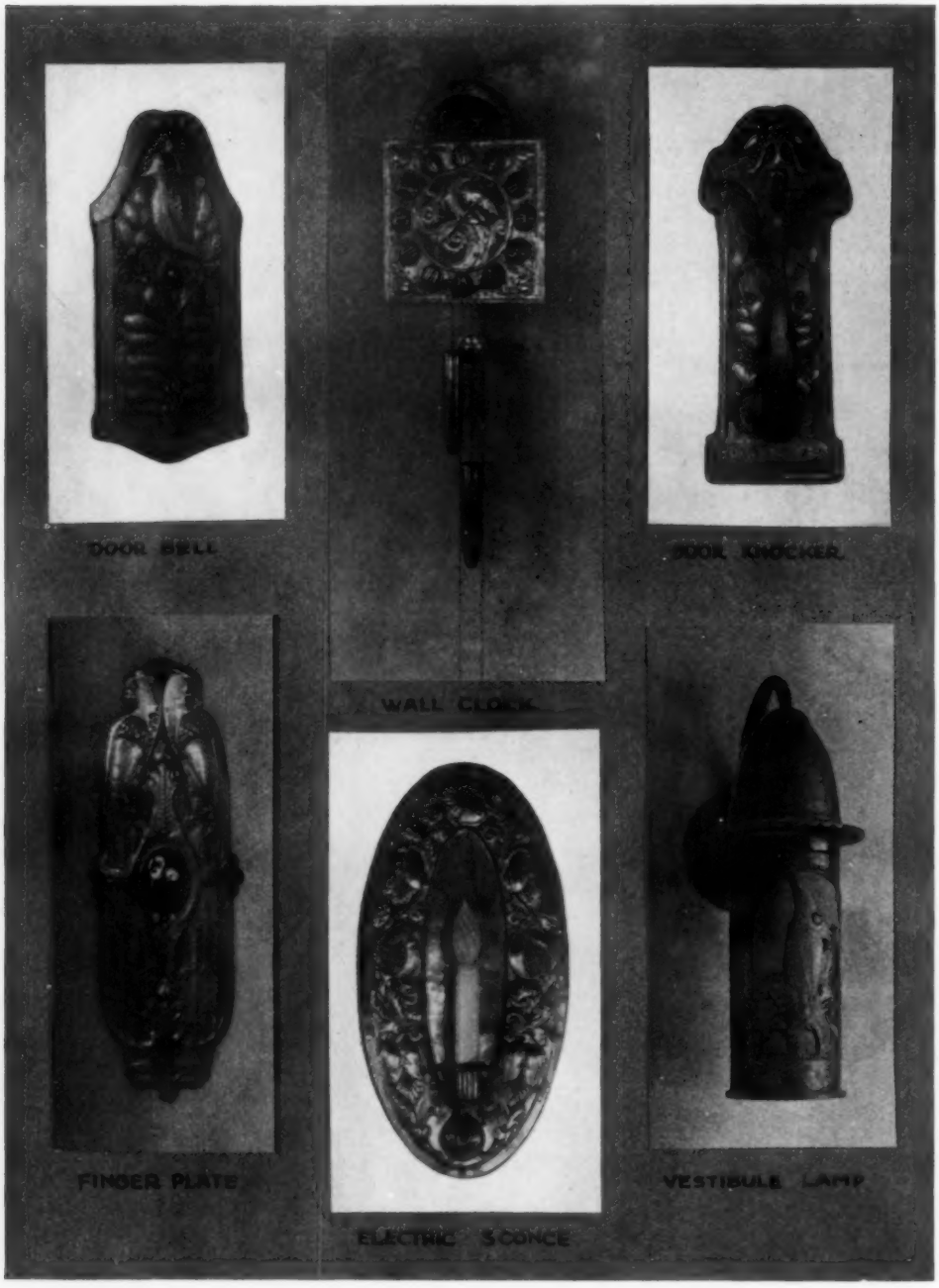
There is ample proof these days, however, that this renaissance of the decorative arts is indicative of sound growth of the oak tree variety. Buyers who found their hands tied (and merchants who found their businesses seriously crippled) during the war, began then to investigate the cause of America's non-production of artistic metal goods. Two factors immediately became evident: (1) America's lack of artistic workmanship, and (2) America's utter dependence on Europe for finished products.

Further investigation disclosed interesting particulars regarding the development of Europe's acknowledged lead in artistic products of a metallic nature. Most governments in Europe have nationally endowed schools of industrial arts and design. America, at that time, possessed neither such institutions nor any agent to foster the establishment of similar schools.

The reason for the high prices of artistic metal work in America was likewise disclosed. Attention was finally riveted to the enormous economic waste which we were permitting by shipping our iron to Europe and buying back from Europe highly priced finished articles. We paid excessive prices for our iron, after it had passed through the hands of foreign artists. American industries, therefore, began to wake up, and to center their disapproval upon the schools.

In response to the growing interest in artistic craftsmanship in America, pressure was brought to bear in favor of a nationally endowed school of industrial arts. And educators began to see the wisdom of fostering interest in metal work in the schools, both private and public. As a result, the past seven years in particular have seen great strides in the production of artistic metal objects. Schools are studying oriental workmanship—the Chinese and the Japanese, the Turkish and the Javanese. The beauty of the old Colonial brasses and the iron products of our own Puritan

INDIVIDUAL DESIGNS MADE UNDER THE DIRECTION OF DOUGLAS DONALDSON. NOTE THE CHARM OF SPACE DIVISION AND ENRICHMENT



A PAGE OF CHARMING THINGS IN METAL MADE BY DOUGLAS DONALDSON FOR HIS STUDIO IN CALIFORNIA

fathers are also influencing the modern movement. We have laid aside, however, the crude tools of former years; and we are learning every day that beauty of form, color, and texture may be expressed with metal as well as with commoner media. And we are learning the advantages of both expert workmanship and fine design.

Two channels of information outside of the schools, are influencing home decoration—the art museums and the illustrated magazines. The museums help indirectly by aiding craftsmen who are in need of ideas; trained attendants conduct men who seek help to the work of many different countries. The work of ancient oriental civilizations is particularly beautiful, and there are many specimens of it on display in our museums.

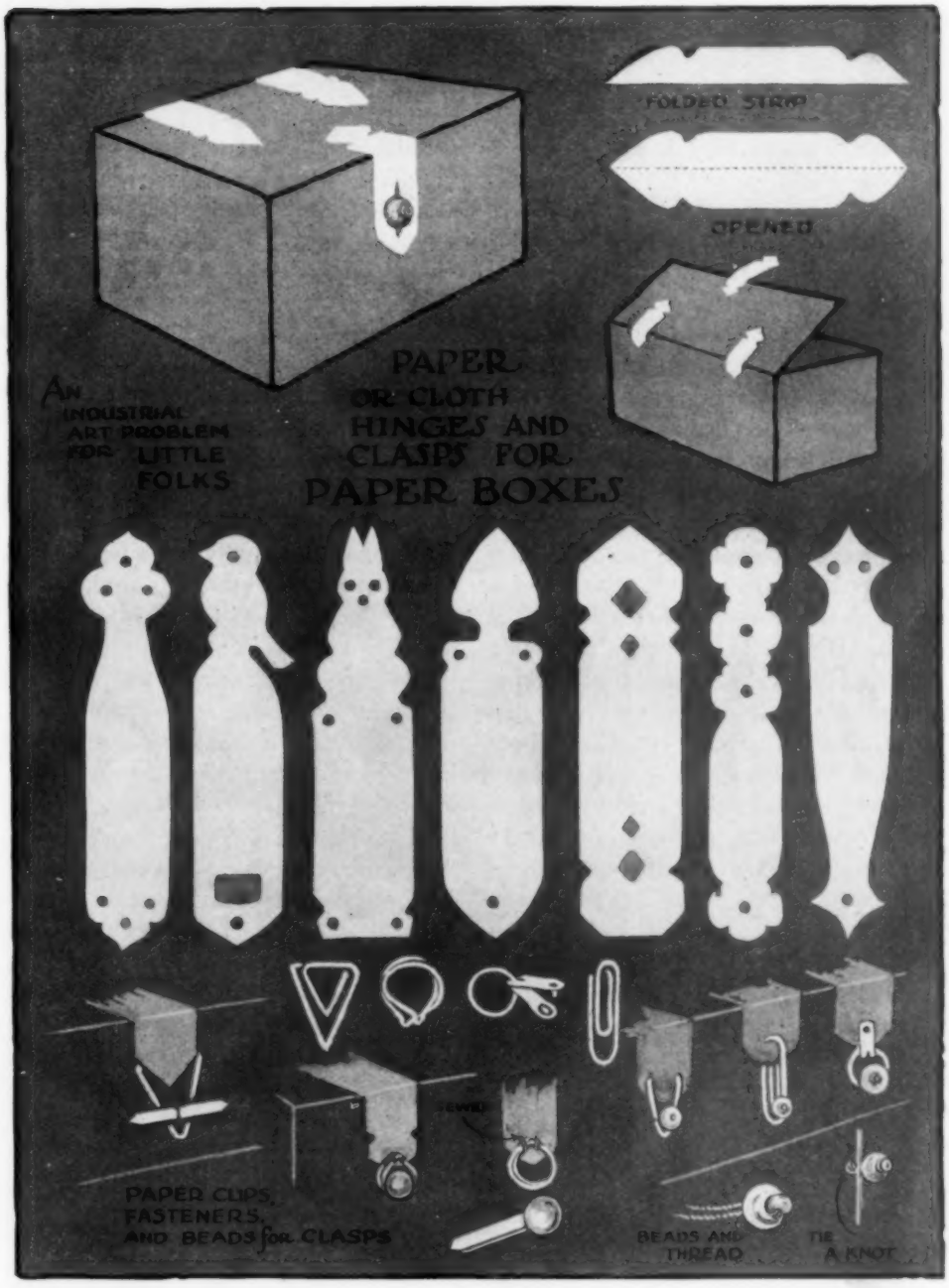
Of the two channels, however, the professional and popular magazines probably exert the most direct and most beneficial influence. Such publications, with their attractive presentation of the work of trained craftsmen and expert designers, reach the general public and the home-makers themselves—the consumers and the art appreciators. The magazines are helping, in this manner, to shape the taste of both the schoolboy and his parents. By so doing, they keep interest alive. The creative impetus requires nourishing food; and the arts, to flourish, must be supported by an educated and appreciative public.

The accompanying illustrations make no boast. They are simple little things, symbolic of to-day's art production in metal work, designed to fit into the modest studio-home of the man who made them. As William Morris would say, we "know them to be useful and we believe them to be beautiful"; and so they add to the joy and happiness of our days.

A VESTIBULE LIGHT, FIREPLACE DECORATION AND A LETTER RACK

AN INTERESTING PAGE OF METAL PROJECTS SUITABLE TO GRADE WORK
THE MATERIALS ARE INEXPENSIVE AND YET FULL OF GOOD POSSIBILITIES

The School Arts Magazine Alphabeticon, January 1923


FOLDED STRIP
OPENED
AN INDUSTRIAL ART PROBLEM FOR LITTLE FOLKS
PAPER OR CLOTH HINGES AND CLASPS FOR PAPER BOXES
PAPER CLIPS, FASTENERS, AND BEADS for CLASPS
BEADS AND THREAD
TIE A KNOT

WHY NOT MAKE SOME OF THESE AS A CHANGE FROM THE ORDINARY PAPER BOX WORK? THE ADDITION OF COLORED HINGES AND BEAD AND METAL CLASPS WILL APPEAL TO THE EYE OF ALL LITTLE FOLKS

Oriental Brass

LANICE PATON

ONE THING which strikes the traveller's ear among the motley sounds in a busy oriental street is a peculiar, metallic ring. He soon learns to associate that sound with the pleasant thought of a cooling drink, not because presumably he dares partake of certain "eau sucrée" or questionable lemonade, but he sees a man carrying a great jar of it and clapping together the while two bowls the ring of which supplements his own peculiar vending cry. Not infrequently the seller's outfit consists of a good deal of conspicuous, burnished brass. His bowl is always like shining gold and has a sweet tone, for it also is of brass. One hears, too, especially in a large place like Damascus where there are many caravans, the jingle of many kinds of bells. There are long camel-bells of the usual bell-shape and there are flaring ones like inverted glass finger bowls, sometimes a melodious series, one inside the other. There are jangling round bells on the necks of a herd of mules returning at top speed from a mill and there are little angular ones on the small donkies that lead the caravans. All these bells are of native make and are of brass. And this brings us to the first general characteristic of oriental brass we would mention, namely, that the best specimens of it, particularly pieces flat like trays, have a clear ring. The finer and heavier the piece of brass of course the more musical the tone.

Hence it may be noted that the finer workmanship is always found on the thicker, better brass. Repoussé work from its very nature, however, is done on thinner metal but even this varies in character according to the thickness. The price of metal work depends in the Orient chiefly on the weight, and since weight and workmanship seem to run parallel this is just.

In the heavier metal one finds three kinds of work,—the inlaid, the chiseled, and the engraved. The first of this series presents usually the most beautiful designs but is rather impracticable as offering suggestions to workers outside a fully equipped craft studio. The designs consist principally of elaborate interlaces, chiseled or engraved, and darkened with a black pigment. The leaves, larger flourishes, or, most commonly, Arabic letters,—which on the finer work always spell something,—are of inlaid silver or copper. Strange as it may seem to inlay silver on a baser metal, the beauty of the result seems to warrant it, for the contrast in color in the actual object is most pleasing. Unfortunately it does not show at all well in drawings or in photographs. In Plate 1, the little tray is of this workmanship. It has a simpler design than most of the inlaid work, more confined to straight line, and the main lines in the decoration show up plainly.

The chiseled designs are done in fairly deep cutting. These are either darkened or left plain as in the tray in Plate 1. The finest finger bowls are not darkened but most trays are because

blackening throws out the design. The same is true of the engraved work. The latter is characterized by the delicacy of the lines in the designs which are often very bold, big effects being produced by burnished surfaces shaped by engraved borders.

All oriental crafts are exceedingly ornate in design. While this is true of rugs, or inlaying, or jewelry, it is especially true of brass work. When you enter a great Damascus shop full of this ware you are confused with the maze of decoration and hardly know where to choose unless you know beforehand what you *do not* want. In spite of the seeming limitlessness of designs, however, and the fact that no two pieces, even apparently alike, resemble each other exactly, there is really a surprisingly moderate range of design. The ensemble of Damascene workmanship may be said to have the following general characteristics: well-spaced bands of design with plain or braided borders containing medallions, continuous patterns, intricate arabesque, a good deal of conventional or carefully arranged Persian or Arabic lettering, and scarcely any undecorated surfaces.

Examined in detail the better engraved and chiseled work,—we have already summarized the inlaid,—will be found to have designs mostly of inter-

A GOOD VIEW OF THE SYRIAN BRASS WORKERS' INTERESTING DISPLAY

PLATE 1 PLATE 2

laced lines and scrolls all done freehand and never very accurate. The tray in Plate 2, while not of the finest kind, is of a decidedly "sketchy" nature. Many of the engraved jars of recent make have Egyptian figures on them, either the conventional flowers or more often men and animals. Such designs offer suggestions as to a possible source for metal designs in American school work. Most of the chiseled finger bowls have designs of broad interlaced bands or of conventional flowers and delightfully impossible animals sometimes with effective stippled spots upon them. Stippling is used largely in the backgrounds of these designs and serves to make them in most cases much clearer. In the embossed and chiseled jardinière, Plate 1, and in Plate 2 it is quite largely used. The embossed work, however, depends for its clearness on the height to which the brass is beaten. The designs in this work are frequently far less beautiful than in the other styles. Such pieces of Persian repoussé work as I have seen are better than the Damascene. The general style of the patterns is plainly seen in the group in Plate 2. The center of the tray in the latter photograph represents perhaps "the Chimpanzee; he sits on the ancestral tree." Animals and human figures appear frequently in the repoussé work, also large lettering and graceful flowers.

So far oriental brass has been described merely in general with the emphasis laid chiefly upon the decoration. The elaborate beauty of this cannot be seen in the illustrations. If we choose to consider it in connection with school crafts, we can use it principally as an illustration of one style of art, questionably practicable for the unskilled to imitate.

It is from the forms in which oriental brass is made that we can derive the most helpful suggestions. The pictures tell more about this than words can. There is a great range of graceful bowl and jardinière shapes. Vases are less successful; the better the quality invariably the more complex the curves in the outline. The trays usually have fluted borders like the one in Plate 2. The bowls often beaten out of one piece of metal, but the jardinières, are made in two sections skilfully jointed. Of

especially pleasing contour are the Damascus shapes shown in Plate 3, which have an open-work top, and the one containing the fern in Plate 1. A Damascene favorite, very practicable, is seen in the one to the right in Plate 1. The straighter the lines in the jardinières the more useful they are for pots or for arranging flowers. There are also many quaint hanging vases. Many are made large enough to hold a glass. One I saw was used for burnt matches or could even be filled with earth for planting. It consists of two pieces joined at the edge. Besides the articles mentioned, are pen trays, little plates, hanging lamps and even small tabourets of brass.

There is a sort of fascination about oriental brassware. Like the "rug craze" it is apt to seize your fancy till jars galore invade your quarters. Its designs often will not bear close scrutiny for they are done in a very freehand manner. Yet it is a craft one can love for the art's sake aside from any technical interest.

PLATE 3

Simplicity in Jewelry Making

C. LOUISE SCHAFFNER

SINCE metal is the hardest and most unresponsive medium with which the artist or craftsman can express his sense of beauty, it seems self-evident that this fact should be taken into consideration in the making of designs for jewelry.

One of the most frequent mistakes made by beginners in the study of applied design, is that they do not consider the material and the tools with which the design, when actually applied, must be executed. It would hardly seem the result of good judgment to make an elaborate design, consisting of minute detail, as you would expect to see in lace or embroidery, when the design is to be applied to silver, gold or platinum. And yet this very thing is often done, not only by beginners, but by craftsmen who seem to be striving to show how wonderfully skillful they have become, rather than to express beauty of line and form.

They seem to lose sight entirely of the fact that most of the metal used in the making of jewelry is merely a setting for some beautiful stone, and should therefore be subordinate to the stone, just as the frame around a picture should be subordinated to the picture, and should not be so conspicuous as to call attention to itself at the expense of the picture. A piece of over-ornate

hand-made jewelry or any other extravagantly decorated piece of handicraft calls to mind the well known expression, "It is red with the blood of slaughtered time."

It certainly seems a sinful waste of time and energy to cover a piece of jewelry, in which a beautiful stone has been set, with a mass of laboriously wrought, detailed ornamentation that fairly shrieks for attention, when the stone in a more simple, well designed setting would be exquisitely beautiful.

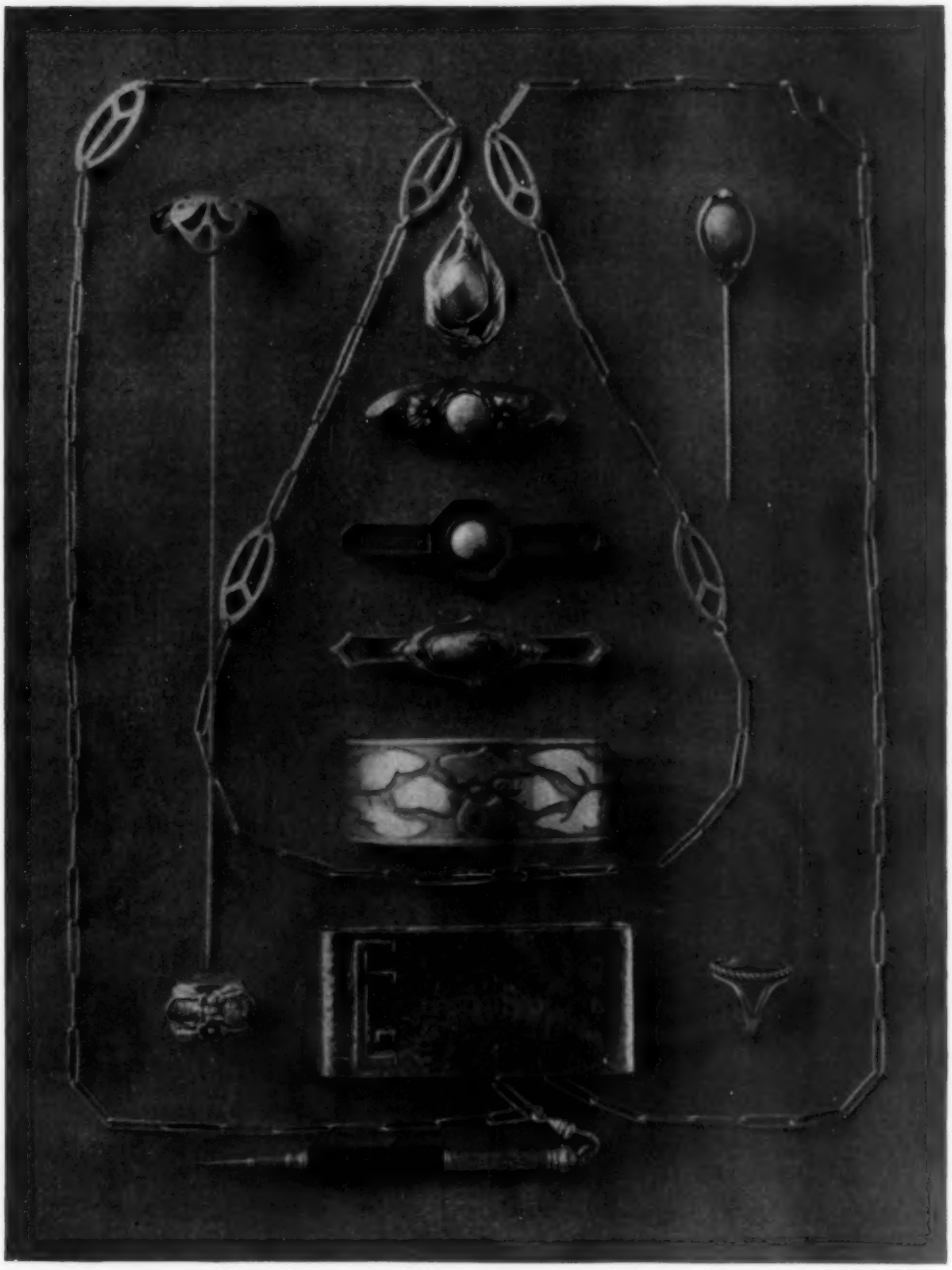
Mr. Lemos expressed the thought of simplicity in design very aptly last summer, when he told his class in design to use the process of subtraction, rather than addition, in trying to improve their work. Mr. Johonnot also expressed the same idea by his characteristic phrase "elegant restraint."

The word "elegant" seems to convey a sense of simplicity along with its usually accepted signification. Things that may be called elegant are never fussy nor frivolous but, on the contrary, dignified in appearance, showing careful planning and execution. This is especially true in the matter of clothes. An elegantly dressed person is never "overdressed." An elegant gown is usually extremely simple, but beautifully made, of excellent fit, material, line, color, etc. Every dressmaker knows that it is much more difficult to make a simple dress look "well-made" than a fussy one. The fussiness often hides a "multitude of sins." This truth is equally applicable to hand-made jewelry. When the design is simple it needs to be much more carefully thought out and worked out in order to obtain a good result. A defect in the workmanship, which might scarcely be noticed in an elaborate design, becomes very conspicuous, even glaring, in the case where "elegant restraint" has been practiced.

This very feature makes the craft of great value to the high school pupil. He will learn to use discretion in the choice of design, to see the "eternal fitness" of things. He will also learn the value of careful, painstaking workmanship instead of the hurried, careless method too often used in some of the other crafts.

Another valuable lesson for the immature mind is the fact that the intrinsic value of an article should be determined by its actual beauty and not by its cost in "dollars and cents." Many of the semi-precious stones are more beautiful and effective than some of the so-called precious ones. Often they are much more adapted to the working out of color harmonies both in the combination of stone and metal, and in the combination of the jewelry and the gown with which it is to be worn. The wonderful coloring of the lapis lazuli, the jade, the Russian malachite, the coral, etc., often add just the correct note to an otherwise lifeless costume. The making and selecting of jewelry should be included in the costume design course.

It is also essential to good results in jewelry making to know which metal will bring out the beauty of the stone to the best advantage, regardless of the cost of the metal. Many stones, as for instance the green or blue turquoise matrix or the lovely rose-colored rhodonite with its soft gray veining, are infinitely more beautiful set in oxidized silver than they are in gold. Many of the abalone blister pearls are more



SIMPLE AND EFFECTIVE JEWELRY SUITABLE FOR PROBLEMS IN HIGH SCHOOL CRAFTS-WORK. THESE WERE MADE UNDER THE DIRECTION OF C. LOUISE SCHAFFNER

lovely in silver, while some with a yellowish cast, are better set in gold.

A turquoise matrix, which the writer has in mind, is a lovely light blue with copper colored veining. This stone set in a combination of silver and copper would make a beautiful color harmony. Unfortunately few people would countenance such a proceeding because copper, although having a wonderful color, is so *cheap*. Many people prefer platinum to any other metal and insist that it is because it enhances the beauty of the stones, expecially diamonds, more than gold or silver. The real reason in nine cases out of ten is the fact that platinum is more expensive and is therefore more desirable, although it often makes a piece of jewelry look very insipid. Diamonds are so clear and white that their beauty and sparkle are increased by a contrasting setting of gold or onyx, rather than by a white metal like platinum.

It is interesting to conjecture what the effect would be on the use of platinum for jewelry, if suddenly there were found sufficient quantities of the metal to make it as cheap as silver or copper for example. Jewelers would probably be swamped with orders to change the setting of thousands of pieces from platinum to gold, and the reason given in most cases would be that "gold is so much more beautiful." Real beauty does not depend on scarcity nor price.

The pieces of jewelry in the accompanying illustration, which were made by the writer and some of her students, are examples of most of the processes commonly used in the making of "craft" jewelry.

The hatpin is made of copper with the design sawed and drilled out. It is one of the first and simplest problems for the beginner. The bracelet is made of silver with the design in relief, the background having been etched, or eaten out, by nitric acid. While the acid was at work, the design and the under side of the bracelet were covered with asphaltum.

The two pins above the bracelet, as well as the tie pin, are examples of simple designs made by sawing and filing and then soldering the various pieces together. The napkin ring or "holder" is hammered silver onto which the initial has been soldered.

The lavalliere, the pin just below it, and the ring to the left of the napkin holder are the most advanced and difficult problems. The lavalliere is of silver with an abalone blister pearl. The design was carved or cut with engraving tools. The pin below it is gold with a red coral in the center. The flowers on the pin, as well as on the ring, were made separately by sawing, hammering, bending into shape, carving and filing the detail, and finally soldering onto the pin or ring.

The links of the chain were shaped on a mandrel. Each link was soldered, and carefully filed and shaped. The rhodonite in the long bar pin, as well as the blister pearl, and the lapis lazuli in the tie pin, and in the right-hand ring, are set in a bezel setting, while the two round corals are set on prongs. A small piece of wire, just the size of the small hole in the back of the stone, was soldered in the middle of the little cup or hollow into which the stone was to be set. To make the setting more secure pearl cement was used just before placing the stone onto the prong.

January Projects for Kindergarten and Primary Grades

BERTHA HAYWARD HIGGINS

"OH! OH! OH!" cried Billy, "It is beginning to snow. Please, Miss Devoid, let us make a snowman!" And so, looking like little wooley bears in sweaters, caps and mittens, the children set out.

First they rolled the snow into a big ball for the snowman's body, tugging and pushing right merrily. Then they made his head. A roll of snow, and his nose was done. For his eyes, they used pieces of coal; for his mouth, a curved twig; for his whiskers, straws. The janitor gave them an old hat and a shovel. Someone ran into the schoolroom and brought out the box of horse chestnuts to supply the buttons for his coat.

When their snowman had been duly admired and the children had chosen a name for him, they returned to the schoolroom with glowing cheeks and sparkling eyes. Later they cut his picture from white paper and mounted it on gray.

That night Miss Devoid enthusiastically planned her work for January, that month which, coming as it does between two months so filled with possibilities, is usually a little dull.

"No sand table Esquimo village for us this year," said Miss Devoid to herself. "This year, whenever the weather is favorable, my 'kiddies' are going to get as much out-of-door exercise as they did last October when we went every day on 'a voyage of discovery' through the woods and fields."

After re-reading *The Snow Baby* and the other delightful Peary books, and selecting the stories and illustrations which she wished to use, she went to the library and secured copies of some other helpful books—Lane's *Wide World* (in which she read the chapters on "Esquimo Houses"), *The Play of Esquimo Boys*, Starr's *People of North America*, and Smith's *Esquimo Stories*.

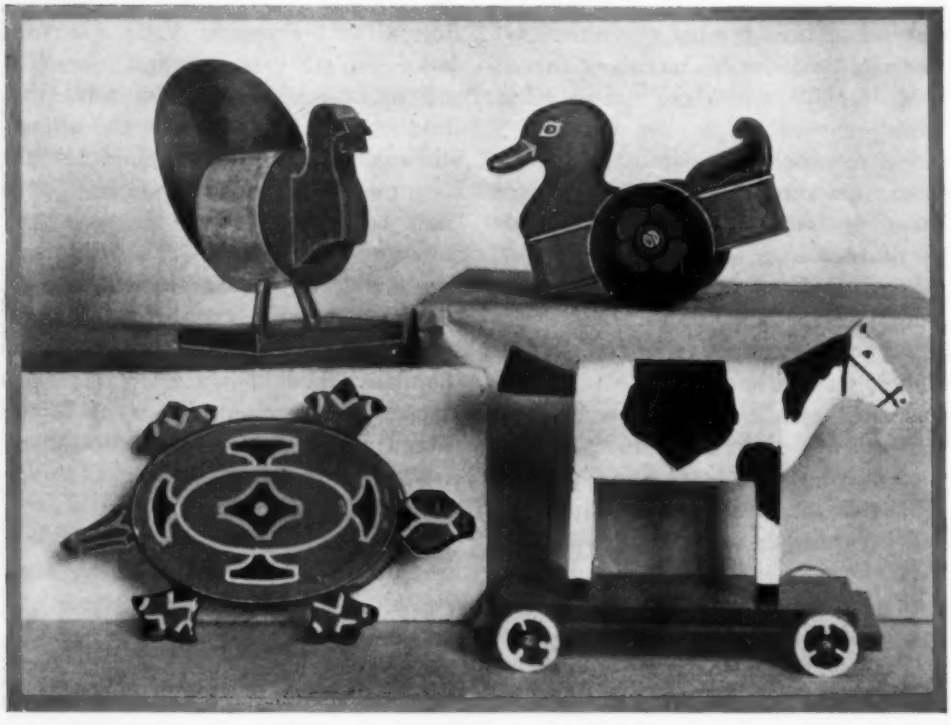
Then, one morning, she took the children for a walk around the school building, and selected a place for an Esquimo camp, which was well sheltered from the wind and where the snow was suited to her purpose. The children, who had been asked to bring small shovels from home, set to work to make a snow hut, toiling with more eagerness than they had shown when they had made their snowman. A week later, with a little help from the older boys, the dome-shaped hut had been finished, and a low doorway had been cut in the side. A lantern and some fur robes were borrowed from the neighbors, and the Esquimo's winter quarters were complete.

The children were asked to come next day dressed as much like Esquimo boys or girls as possible. Mary's mother had made her a warm little tight-fitting hood with a point in the back, which fitted closely around her face. So she

wore this with her little fur coat and her mittens and big brother's gaiters, into the tops of which she had stuffed some feathers from an old pillow. Mother had combed her hair straight back and plaited it into two long braids. How the children laughed when they saw this little "Agoonack!"

As the days sped by, they learned more and more of the interesting ways of the Esquimos. Sometimes they played at cooking blubber over a stone fireplace; sometimes they played at fishing through the ice. One day Freddie brought his big Newfoundland dog to school, hitched to a sled, and each little Esquimo had a short ride. Another day they went to the "Zoo" to see the seals.

When they had finished the little Esquimo books, into which they had put all their drawings and cuttings for the month, and had carried them proudly home, Miss Devoid's verdict was that she had happier children and fewer "colds" than during any winter since she had come to Elmhurst. And she decided that January was quite as rich in possibilities as any other month in the year.



TOYS FOR THE AMATEUR METAL WORKER. THESE WERE MADE OUT OF DISCARDED CANS. NOTE HOW APTLY THE SARDINE CAN ADAPTS ITSELF TO THE TURTLE. THE LEGS ARE OF WOOD. FROM THE 1921 APPLIED ART SUMMER SCHOOL OF CHICAGO

The Making of Etched Metal Plates

JOHN T. LEMOS

YOU ARE, no doubt, quite familiar with that type of name plate which is seen on the cornerstones of banks, over library doors, and on similar institutions. These plates are generally produced by concerns who make a specialty of the work. Many of the plates we see in the average city are artistic, but some of them are examples of bad design.

If you ever stopped to enquire, you found that it is an expensive luxury to have such a plate made, as the work is done by especially designed machinery. For the average concern, the stock designs and lettering used in these plates seem to be satisfactory, but the completed plate generally has a "cut and dried" appearance which comes from working within restrictions. If an original design is wanted, it necessitates an extra process in the production of the plate, and entails, of course, added expense.

There are many occasions when a designer or craftsman would be interested in producing such a plate, if he were certain that he could handle it successfully. The suggestions given here are all based on actual experience and, if followed carefully, should give successful results.

The advantage of a plate made individually lies in the fact that the plate is bound to have the charm that always goes with hand work. The very lack of decided crisp cut lines, so evident in a machine product, is one of the elements which helps to make the handwork a piece of art as well as of utility.

Work done in this way on copper, zinc, or brass, may be used for finger plates, door knockers, name plates, frame ornaments, memorial tablets, and dozens of other things. If carefully done, the process is quite simple, and the result is well worth the effort. It is generally a good plan to start with something fairly small in size, so as to avoid expensive experimentation. A finger plate for a door, for instance, would be a good problem to use at the start.

The process of producing these plates is based upon that used by the photo-engravers in their commercial work. The difference lies in the fact that all the letters or designs put onto the plate are painted on by hand in acid-proof paint, instead of using a negative.

As an illustration, let us take a copper name plate which is to go on a gate post. This plate is to contain the owner's name and some simple border design. The first thing to do is to sketch out your design in pencil, on fairly thin paper. When the design has been satisfactorily planned, you can then obtain your metal. The copper or zinc may be purchased from an engravers' supply house, or from an engraving shop.

After obtaining the metal, be sure to see that the surface is clean and free from grease before you trace your design on it. This can be done by thoroughly rubbing the surface of the metal with a stick of willow charcoal or some good

silver polish. After this cleaning, slip a piece of carbon paper beneath your sketch and trace the design on the metal. To keep the paper from slipping, you can paste the ends of it to the under side of the metal plate.

When the design has been traced, it is ready to be painted in. From the engravers' supply shop or a paint store, buy a small can of good asphaltum paint. Stir this up thoroughly and paint over the letters, designs, or any part of the metal plate which you wish to remain in relief. If the paint is too thick, it should be thinned with a very small quantity of gasoline.

After being painted, the plate should be allowed to dry thoroughly. If left in a fairly dustless place overnight, it should be quite dry by morning. When dry, tip the plate against the wall and paint the back with a coat of shellac. This is to keep the acid from eating through the back of the plate. When the shellac is dry, the plate is ready to etch.

There are various acids used but nitric acid seems to be the most common in general use. This acid may be purchased at the engravers' supply house, or at a drug store. It should be mixed as follows:

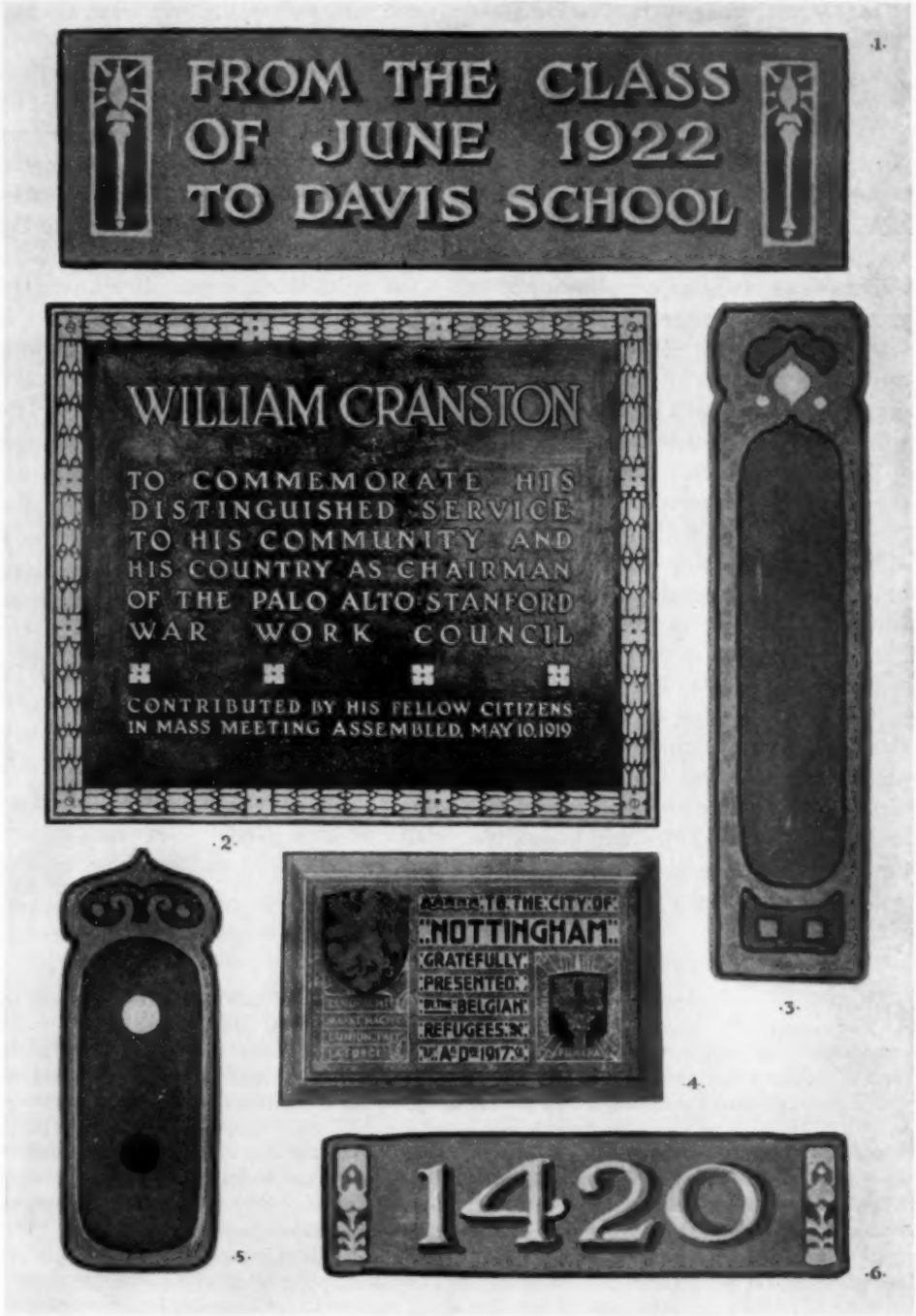
2 parts water
1 part nitric acid.

Use a porcelain or other acid-proof tray, pouring the water in first and the nitric acid in last. Tilt the tray back and forth in order to mix the two fluids well. If a small piece of copper is placed in the nitric acid before it has been mixed with the water, the etching will proceed better, when the plate is being etched.

Place the plate, then, in the tray, face upward. Generally the acid will be seen to take hold on the metal in a few minutes. After it has been left in the tray about fifteen or twenty minutes, the plate should be taken up and placed under running water. When washed, dry it between blotters or paper towels and look at it with a magnifying or reading glass. If a small edge shows on the parts that have been painted with asphaltum, the etching is progressing satisfactorily. If it does not, mix a little common table salt and water and flow this over the surface of the plate. This helps to cut away any grease that may be retarding the etching. Be sure to place the plate under running water again before immersing it in the acid.

After the first inspection, the plate may be left in the acid for half or three-quarters of an hour before taking it out again. As the nitric acid eats down into the plate, it will sometimes work sidewise and take little corners out of the surface of the letters or motifs. When this happens, the plate should be dried and these missing parts retouched with more asphaltum paint.

If the plate you are making is to be fairly thick, and the design in decided relief, then an extra step is necessary. Engravers call this step "banking the plate." To do this "banking," you should buy, at the supply house, powder known as "Dragons' Blood." This powder, which obtains its name from its color, is used to protect the edges of the etched designs. To do this, the plate is taken from the acid, rinsed, and dried thoroughly. Then the Dragons' Blood is dusted on the plate and brushed carefully up against one side of the letters or the designs with a soft brush or tuft of cotton. The plate is then laid carefully on a gas burner and "burned in."



A PAGE OF ETCHED METAL PLATES. AT THE TOP IS A PLATE ACCOMPANYING A GIFT FROM A SENIOR CLASS TO ITS SCHOOL. 2. IS A MEMORIAL TABLET. 3. A FINGER PLATE FOR A DOOR. 4. A BELGIAN MEMORIAL TABLET. 5. AN ELECTRIC PUSH PLATE. 6. HOUSE NUMBERS

The School Arts Magazine Alphabeticon, January 1923

When heated sufficiently, the Dragons' Blood turns to a glossy black. The plate should then be taken off and allowed to cool.

This process of "banking in" should be done on all four sides of the exposed letters or motifs as shown in the illustration. Care should be taken, in banking the powder, to brush it well out of the flat portions of the plate, allowing it to remain well up against the edges of the letters and designs. If this is not done, any powder remaining on the parts that are to be etched, will form a thin scum which seriously retards the etching.

After the plate has been banked and the etched edges protected, it can be put back into the acid and etched considerably deeper. A large memorial tablet or a name plate similar to those illustrated can be done in this way, leaving letters and designs in decided relief.

When the plate has been etched sufficiently, it should be taken out and cleaned. This is done by warming the plate over the gas burner and then scrubbing it well with some turpentine and a stiff brush. This will loosen the asphaltum, leaving the metal exposed. A final scrub, with a mixture of acetic acid, salt, and water, will clean up and brighten the metal.

The plate is now ready to color. Various color effects may be obtained by a number of methods. Those secured by means of acid are explained in the article following this. Another satisfactory method is that of mixing up the desired color in oil paints. Make the color quite thick, stipple it all over the plate with a stiff brush. When it is nearly dry, rub a soft cloth over the tops of the letters and designs so as to leave them with the metal exposed. The paint will stick to the etched surfaces and can be made permanent by finishing with a thin coat of shellac. After the coloring is complete, the plate is ready to put up. Four or six holes bored into the ouside margin are enough for screwing the plate into position.

After the first attempts, it will be surprising to see the effects that can be obtained through this process. Every plate can be given a touch of individuality that no amount of mechanical effort can ever hope to rival. Try making one for your doorway or for your garden entrance.

COLORING OF COPPER. All shades from pale copper color to dark chestnut-brown may be produced by a superficial oxidation of the copper. Uniform heating over a spirit flame suffices for small articles, while with larger objects a more uniform result is obtained by heating them in oxidizing fluids or coating them with an oxidizing paste. Excellent results are obtained with a paste prepared, according to the darker or lighter shade desired, from 2 parts ferric oxide and 1 part graphite, or 1 part ferric oxide and 1 part graphite, and water or alcohol. This paste is uniformly applied with a brush and the article thus treated put in a warm place. The darker the color desired the higher the temperature must be and the longer it must act upon the object. When the heat has sufficiently acted upon the article the dried powder is removed by brushing with a soft brush, and the manipulation repeated in case the shade is not sufficiently dark. The article is finally rubbed with a soft linen rag moistened with alchool, or brushed with a soft brush and a few drops of alcohol until it is completely dry, and then brushed over with a brush previously rubbed upon pure wax. The more or less dark shade produced in this manner is very warm and resists the action of the air.

Brown Color upon Copper is obtained by the application to the thoroughly cleansed surface of the object of a paste of 3 parts of verdigris, 3 of ferric oxide, 1 of sal-ammoniac and vinegar, and heating until the applied mixture turns black; the object is then washed and dried. By the addition of some cupric sulphate (blue vitriol) the color may be darkened to chestnut brown.

A brown color is further obtained by brushing to dryness with a hot solution of 1 part of potassium nitrate, 1 of common salt, 2 of ammonium chloride, and 1 of liquid ammonia in 95 parts of vinegar.

Red-brown Color on Copper. Make a paste of 2 parts of verdigris, 2 of cinnabar, 5 of sal-ammoniac, and 5 of alum with sufficient vinegar. Apply this paste to the article and after heating over a coal fire wash and repeat the process.

To Color Copper Blue-black. Dip the article in a hot solution of 11¼ drachms of liver of sulphur in 1 quart of water, moving it constantly. Blue-gray shades are obtained with more dilute solutions. It is difficult to give definite directions as to the length of time the solution should be allowed to act, since this depends considerably on its temperature and concentration. With some experience the correct treatment will, however, soon be learned.

Cuivre fumé is prepared by coloring the copper or coppered objects blue-black with a solution of liver of sulphur, then rinsing them and finally scratch-brushing, whereby the shade becomes lighter. From raised portions, which are not to be dark, but show the color of copper, the coloration is removed by polishing upon a felt disk.

Steel-gray upon Copper. To produce the steel-gray color upon copper, dip the clean and pickled articles in a heated solution of chloride of atimony in hydrochloric acid. By using a strong galvanic current, the articles may also be coated with a steel-gray precipitate of arsenic in a heated arsenic-bath.

To Color Copper Dark Steel-gray. For this purpose a pickle consisting of 1 quart of hydrochloric acid, 0.125 quart of nitric acid, 1½ oz. of arsenious acid and a like quantity of iron filings is recommended.

Black upon Copper is produced by a heated pickle consisting of 2 parts of arsenic acid, 4 of concentrated hydrochloric acid, 1 of sulphuric acid of 66° Be. and 24 of water.

Dead-black on Copper. Brush the object over with a solution of one part of platinum chloride in 5 of water, or dip it into the solution. When dry, rub it with a flannel rag moistened with a drop of oil. A similar result is obtained by dipping the copper object in a solution of nitrate of copper or of manganese and drying over a coal fire. The manipulations are to be repeated until the formation of a uniform dead-black.

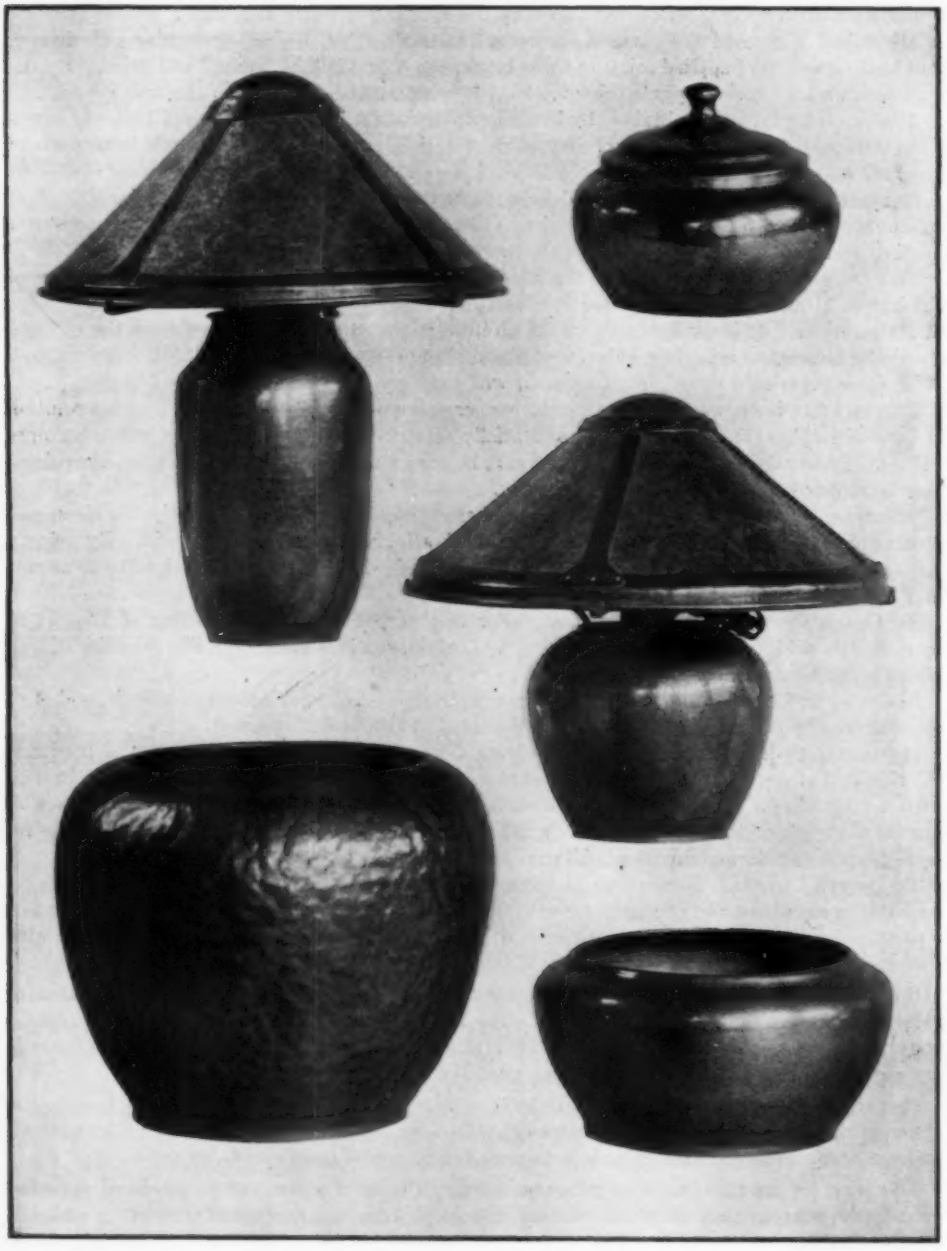
To Brown Copper. The copper to be browned is scoured bright with glass-paper, strongly heated over a coal fire, and brushed over with the following solution: Crystallized acetate of copper, 5 parts; sal-ammoniac, 7; dilute acetic acid, 3; distilled water, 85. Finally, rub the article with a solution of 1 part of wax in 4 parts of oil of turpentine.

Browning Liquid for Copper. Add acetic acid to 11 drachms of spirit of sal-ammoniac until blue litmus paper dipped into the liquid turns red. Then add 5½ drachms of sal-ammoniac and sufficient water to make 2.11 pints. With the fluid thus obtained repeatedly moisten the copper surfaces, rubbing after each application until the desired brown tint is obtained.

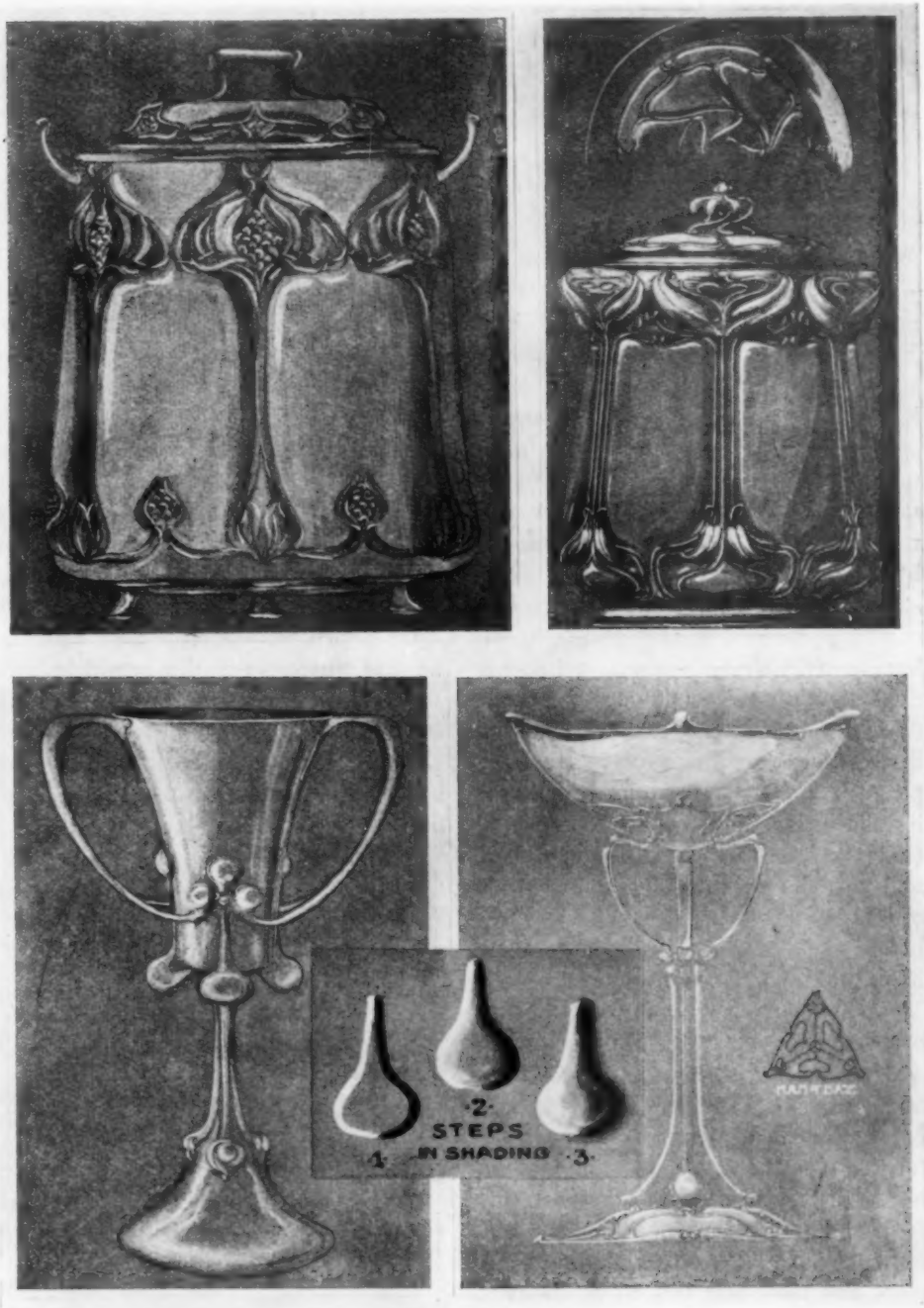
Imitation of Genuine Patina. Articles of copper and bronze exposed for a long time to the action of the air acquire a beautiful brown or green color, which considerably contributes to their handsome appearance. This color is known as *Aerugo nobilis* (noble rust), or *patina*.

Though there are many agents by means of which a layer of patina can be produced upon the bronze, the coating thus obtained cannot compare as regards beauty and durability with the genuine patina.

To produce upon a statue a patina like deposit, brush it over with a very dilute solution of cupric nitrate, to which a small quantity of common salt solution may be added. When entirely dry, brush the statue with a fluid consisting of 100 parts of weak vinegar, 5 of sal-ammoniac, and 1 of oxalic acid, and repeat the application after drying. In the course of about one week the statue will have acquired a green-brown color, resembling that of genuine patina.



SOME MASTERLY METAL WORK FROM THE STUDIO OF DIRK VAN ERP. METAL OBJECTS OF THIS KIND NEVER GO OUT OF STYLE. THEY ARE BASED ON THE PRINCIPLE OF GOOD HONEST DESIGN



A PAGE SHOWING THE TECHNIQUE USED BY MANY SILVERSMITHS.
THE LITTLE INSET SHOWS THE PROGRESSIVE STEPS IN SHADING

The School Arts Magazine Alphabeticon, January 1923

"The Coppersmith"

EDGAR WARD

ELSIE MAY SMITH

MOST of us know something of the pleasure that is derived from making beautiful and useful things. No matter what the material in which we work, we feel a deep satisfaction in having it respond to our efforts, and in seeing the object we are making grow under our hands. This sense of achievement and this satisfaction are well represented for us in *The Coppersmith* by Edgar Ward. The coppersmith stands in his workshop near the window carefully examining the results of his handicraft. He holds the vessel he has made between his deft fingers and gazes upon it with a look of satisfaction upon his earnest, thoughtful face. He looks pleased, but at the same time, we detect in this intent look a desire to be sure that there are no defects in his work, and that the workmanship is of the fine order that his fastidious taste requires before the vessel is permitted to leave his hands as a finished product.

The coppersmith is an elderly man—one long experienced in his chosen work and we feel sure that he is very skillful and knows how to make many useful and beautiful things. His fine, thoughtful face attracts us. We see him here in his well-furnished workshop with his tools and the products of his labor about him. We would like to see more of his work and have him talk to us about it and how he learned to make the beautiful objects which he fashions from the copper. We would like to have him explain the use of the various tools which he employs in achieving the result. If we have studied manual training we are not so ignorant of his work as we otherwise would be, and we can follow his explanations more intelligently than those who have never had any training in this or allied handicrafts. Work in metal is one of the most interesting pursuits which it is possible for a boy or girl with some manual dexterity to take up. Hence, we would be glad to know all that this coppersmith would be able to tell us. However, as we may not talk to him we will enjoy as thoroughly and as intelligently as we can this glimpse of him and his workshop which the artist has provided for us.

What is the title of this picture? What does a coppersmith work in and what does he make?

What does this coppersmith hold in his hands?

What is he doing now?

What look do you see in his face?

Does he appear satisfied with his work? What makes you think so?

Why do you think he examines it so carefully?

If he finds any defects in it what will he do?

If it is as perfect as he can make it, what will he probably do with it?

Do you think he is a careful, painstaking workman? What makes you think so?

In what kind of a room is he working?

Do you think he has a neat-looking workshop?

Would you judge from it that he was an industrious, careful workman? Why?

THE COPPERSMITH BY EDGAR WARD

Where is he standing in the room? How can you tell that he is standing near the window?

Is the coppersmith a young or an elderly man?

Would you judge therefore that he is experienced and skilful in his work?

How would you tell that he was from his attitude and bearing.?

Are you attracted by his face? Why?

Would you like to know this coppersmith and talk to him about his work?

Do you think he could tell you some interesting things about it?

Have you studied metal work or any branch of manual training?

Do you enjoy it? Would you enjoy meeting someone who is very skilful and competent in these lines?

Do you like this picture? Why?

Do you think that the artist who painted it was in sympathy with his subject? What makes you think so?

BRIEF SKETCH OF THE ARTIST'S LIFE.

Edgar Melville Ward, a contemporary figure and genre painter, was born in Urbana, Ohio, February 24, 1839. He is a younger brother of J. Q. A. Ward, the sculptor. He was graduated from Miami University, A.B. 1858, A.M. 1861, and studied at the National Academy of Design, New York, 1870-71, and at the Ecole des Beaux Arts, 1872-78 and under the artist, Cabanel, in Paris. He first exhibited in the National Academy in 1871, and in the Paris Salon in 1876. He was elected an associate of the National Academy of Design in 1875, an Academician in 1883, and has been a professor of drawing and painting there since 1882. He also has a studio in New York. He exhibited at the Centennial Exhibition, and at many subsequent exhibitions, receiving a bronze medal at the Pan-American Exhibition in Buffalo in 1901.

He was married December 13, 1882, to Isabella Eichelberger of Urbana, Ohio. Among his works are the following: "Brittany Washerwomen," 1876; "The Sabot Maker," "Venetian Water Carriers," "Washing in Brittany," 1878; "Street Scene—Treport," 1879; "Normandy Cooper," 1880; "Tobacco Field—Old Virginny," 1881; "Feeling the Edge," 1882; "Collar Shop," 1883; "Street in Treport—Normandy," 1884; "The Cobblers," "Resting," "The Blessing," 1886; "Maker of Wooden Shoes," "Paternal Pride," 1878; "The Last Shock," 1880; "Scene in a Foundry," 1883; "Locksmith," 1883; "Lace Makers," 1885; "Motherly Care," 1885; "Quilting Party", 1893; "The Coppersmith," in the Metropolitan Museum, New York, 1896; "The Taxidermist," 1896; "Spinning," 1897; "Reeling Yarn," 1899; "Reverie," 1901; and "Hungry Jack," 1902.

THE MAN IS BLESSED WHO EVERY DAY IS PERMITTED TO BEHOLD ANYTHING AS SERENE AND PURE AS THE WESTERN SKY AT SUNSET. THERE IS NO WINTER IN THE SKY THOUGH SNOW COVERS THE EARTH.

—Thoreau